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Fisheries Assessment Unit
Report 1986-1

Summer Creel Census in the Canadian Waters of the Western Basin of Lake Erie, 1985

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ABSTRACT

In 1985, the Western Basin Lake Erie summer creel census was extended beyond the traditional survey (Sectors I and II during July and August) to include the months of June and September and Sector III. The survey crews conducted 1,028 boat interviews with angling parties involving 3,171 angler contacts during the census. Angling effort expended in July and August represented 65% of the total effort (144,460 rod-hours) expended in the survey area with 26% of the effort being spent in September. Rod-hours expended in Sector III represented 13% of the total rod-hours spent in the 1985 survey period and area.

The estimated walleye catch in Sectors I and II during July and August (59,464 fish) represented 70% of the total walleye catch and 23% of the total walleye catch was taken in September. The estimated walleye catch in Sector III represented three percent of the total 1985 survey walleye catch. The estimated walleye catch in the traditional study period and study area was 13% lower than that of 1984 but the 1985 walleye harvest was 47% higher than the 1984 harvest.

Estimated catch, harvest and CUE relationships for smallmouth bass are also presented as are length and age characteristics for both walleye and smallmouth bass.

Non-residents of Ontario constituted 84% of the angling parties interviewed during the survey; however, 96% of the anglers interviewed in Sectors I and II in July and August were non-residents of Ontario.

INTRODUCTION

A roving on-water creel census was conducted in the Canadian waters of the Western Basin of Lake Erie from June through September, 1985. This creel census is a continuation of a study initiated in 1975 to provide fishery management information.

The objectives of the 1985 creel census were:

1. to quantify the angling catch and harvest particularly of yellow pickerel[1] (walleye)(Stizostedion vitreum vitreum) and smallmouth bass;
2. to estimate the angling effort and success;
3. to monitor the age and length composition of the walleye and smallmouth bass harvest; and
4. to determine the resident to non-resident angler ratio.

In 1985, the survey area and duration were expanded to include Sector III, as well as Sectors I and II, and the months of June and September, to document suspected changes in angler effort and success. Sector III has not been censused since 1975 nor have surveys been done in June and September in Sectors I and II since 1975.

Creel census techniques used in the 1985 survey were similar to those used from 1975 to 1984 and year-to-year comparisons can be made directly.

[1] Yellow pickerel is the preferred common name among Ontario anglers for this species and is recognized as such by the Ontario Ministry of Natural Resources. However, the international users of this report recognize the common name walleye (Robins et al. 1980) which is the name used throughout this report.

DESCRIPTION OF THE STUDY AREA

The study area was confined to part of the Canadian waters of Lake Erie's Western Basin. This area was divided into four sectors in the original study (Duckworth and Paine 1975) which defined fish species distribution and angling effort and success. Least angling effort was expended in Sector III and none of the surveyed anglers caught any walleye. For these reasons, Sector III was omitted from the census from 1976 to 1984. The lake portion of Sector IV was omitted in 1977 for similar reasons. The river portion of Sector IV (the Detroit River fishery) is geographically distinct from the Western Basin fishery and was surveyed and described in a separate report in 1978, 1979 and 1980. Sector III was included in the 1985 survey to document angling effort and success there.

Sector I included waters around the islands to the west of Pelee Island (East Sister, North Harbour, Hen and Chicken Islands). Sector II included the waters around Pelee Island. Sector III included waters between Point Pelee and Colchester north of Sectors I and II. A description of the boundaries of the three sectors follows:

Sector I	(north)	upbound shipping lane
	(east)	longitude $82^{o}44'W$
	(south)	international border
	(west)	international border
Sector II	(north)	upbound shipping lane
	(east)	longitude $82^{o}30'W$
	(south)	international border
	(west)	longitude $82^{o}44'W$

Sector III (north) Essex county shoreline

(east) a line connecting the tip of Point Pelee to the intersection of the upbound shipping lane with longitude $82^{o}30'W$

(south) upbound shipping lane

(west) longitude $82^{o}56'W$

Sectors were subdivided into areas (Figure I). Sector I was divided into two areas by a line originating from the intersection of longitude $82^{o}44'W$ with the upbound shipping lane and proceeding at 223^{o} (magnetic) to the international border. Area 1 was northwest of this line and Area 2 was southeast of this line.

Sector II was divided into five areas by boundary lines connecting locations on Pelee Island and specified points on the boundaries of Sector II. The southern boundary of Area 1 was represented by a line connecting the southern tip of Fish Point to the intersection of longitude $82^{o}44'W$ with the international boundary. The line dividing Areas 1 and 2 extended north from Lighthouse Point to its intersection with the upbound shipping lane. The division of Areas 2 and 3 was described by a line connecting Middle Point to the intersection of longitude $82^{o}30'W$ with the upbound shipping lane. Areas 3 and 4 were separated by a line connecting Mill Point with a buoy located on the international border at longitude $82^{o}35'W$. Areas 4 and 5 were divided by a line connecting Fish Point and the buoy at longitude $82^{o}35'$ W on the international border.

Sector III was divided into two areas, Area 1 being west of longitude $82^{o}44'W$ and Area 2 being east of this line.

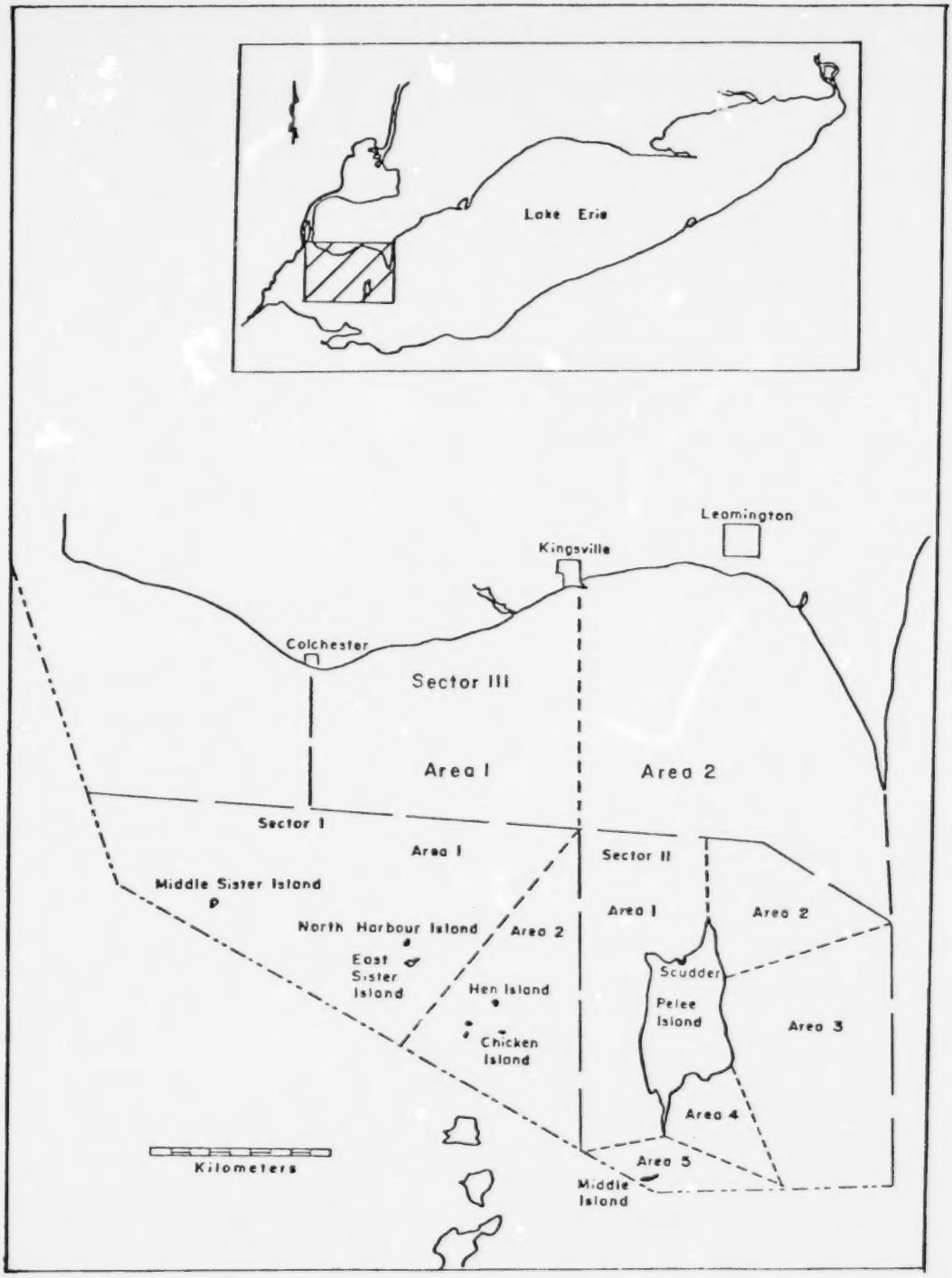

Figure 1. The study area.

METHODS

Crew and Equipment

The creel census was done by two crews each consisting of the owner-operator of a chartered boat and a census clerk. One crew operated from Scudder, Pelee Island, and the other operated from Cedar Island Marina at Kingsville. In addition, two auxilliary crews assisted during times when the regular crews experienced mechanical problems. The four boats ranged in power from 149 kW to 194 kW and from 6.4 m to 7.6 m in length. Boats of this size were considered necessary to do an efficient survey of the study area. These boats were as capable in reaching the fishing areas as most sport fishing boats.

Sampling equipment included a metric measuring board, thermometer, forceps, knife and water tight containers containing: maps, field forms (Appendix I), scale envelopes, fish identification guide and Ontario Fishing Regulation pamphlets.

Schedule

The 1985 creel census schedule is outlined in Table 1. Duckworth and Paine (1975) found that a minimal amount of angling was done in the entire study area during June and September and in Sector III throughout the study period. Consequently, the annual surveys of 1976 to 1984 were done during July and August in Sectors I and II only. The census was expanded in 1985 to include Sector III and June and September to document suspected changes in angling effort and success. The survey was scheduled between June 1 and September 30.

Alternate sets of weekdays, Monday to Friday inclusive, and all weekend days were scheduled for sampling. The Canadian statutory holiday falling within the sampling schedule, i.e., Monday, July 1, was treated as a weekday in Sectors I and II (predominantly United

States anglers) and as a weekend day in Sector III (predominantly Canadian anglers)(Table 29). The United States holiday, Thursday, July 4, was classed as a weekend day in Sectors I and II (predominantly United States anglers) and as a weekday in Sector III (predominantly Canadian anglers). Four weekend days and five weekdays were scheduled for sampling in each 14-day period and five consecutive weekdays in each two-week period were scheduled not to be censused. The criteria considered to establish strata within each month were sector, area, day-type and census-period. Areas were not considered independently in scheduling, as sampling in a sector assumed that all areas within that sector would be sampled in a designated period. Sampling patterns were applied systematically to weekdays independently from weekend days. The following pattern was applied to designate the sector to be censused on weekdays in June and September:

June 3	Monday	Sector I
June 4	Tuesday	Sector II
June 5	Wednesday	Sector III
June 6	Thursday	Sector I
June 7	Friday	Sector II
June 17	Monday	Sector III
June 18	Tuesday	Sector I
June 19	Wednesday	Sector II
June 20	Thursday	Sector III
June 21	Friday	Sector I

September 9	Monday	Sector II
September 10	Tuesday	Sector III
September 11	Wednesday	Sector I
September 12	Thursday	Sector II
September 13	Friday	Sector III

This pattern was continued in scheduling remaining weekdays in June and September.

Weekdays in July and August for Sectors I and II were scheduled as in other years:

July 1	Monday	Sector II
July 2	Tuesday	Sector I
July 3	Wednesday	Sector II
July 4	Thursday	Sector I
July 5	Friday	Sector II

July 15	Monday	Sector I
July 16	Tuesday	Sector II
July 17	Wednesday	Sector I
July 18	Thursday	Sector II
July 19	Friday	Sector I

This pattern was continued in scheduling remaining weekdays in July and August for Sectors I and II.

Weekdays in July and August for Sector III were scheduled for censusing during the same five-day periods as Sectors I and II. The creel census clerk for Sector III in July and August was also doing another creel census project. Schedules for the two censuses were arranged with logistical considerations in mind. The schedules ensured similar sampling intensities for strata throughout the study

area and period and the Sector III weekday schedule looked like this:

July 1	Monday	Sector III
July 2	Tuesday	Sector III
July 3	Wednesday	Sector III
July 17	Wednesday	Sector III
July 18	Thursday	Sector III
July 19	Friday	Sector III
July 29	Monday	Sector III
July 30	Tuesday	Sector III
August 1	Thursday	Sector III
August 2	Friday	Sector III
August 12	Monday	Sector III
August 13	Tuesday	Sector III
August 14	Wednesday	Sector III
August 29	Thursday	Sector III
August 30	Friday	Sector III

On weekends, the following pattern was followed to select sectors in June and September:

June 1	Saturday	Sector II
June 2	Sunday	Sector I
June 8	Saturday	Sector III
June 9	Sunday	Sector II
June 15	Saturday	Sector I
June 16	Sunday	Sector III

This pattern was continued to the end of June.

September	1	Sunday	Sector III
September	7	Saturday	Sector II
September	8	Sunday	Sector I
September	14	Saturday	Sector III
September	15	Sunday	Sector II
September	21	Saturday	Sector I

This pattern was continued to the end of September. On weekends in July and August, the following pattern was followed to select Sectors I or II:

July	6	Saturday	Sector II
July	7	Sunday	Sector I
July	13	Saturday	Sector I
July	14	Sunday	Sector II

This pattern was continued in selecting the remaining weekend days in Sectors I and II in July and August.

Sector III was scheduled for censusing every other weekend during July and August starting with the July 6-7 weekend.

Census-period (AM or PM) was assigned to weekdays independently of weekend days and Saturdays and Sundays were treated independently when assigning census-periods on weekend days.

On weekdays in June and September, the following pattern was applied to select the time-period to be censused:

June	3	Monday	Sector I	AM
June	4	Tuesday	Sector II	AM
June	5	Wednesday	Sector III	AM
June	6	Thursday	Sector I	PM

June	7	Friday	Sector	II	PM
June	17	Monday	Sector	III	PM

This pattern was followed to the end of June.

September	9	Monday	Sector	II	PM
September	10	Tuesday	Sector	III	PM
September	11	Wednesday	Sector	I	PM
September	12	Thursday	Sector	II	AM
September	13	Friday	Sector	III	AM
September	23	Monday	Sector	I	AM

This pattern was followed to the end of September.

On weekdays in Sectors I and II in July and August the following pattern was applied to select census-period:

July	1	Monday	Sector	II	AM
July	2	Tuesday	Sector	I	PM
July	3	Wednesday	Sector	II	PM
July	4	Thursday	Sector	I	AM
July	5	Friday	Sector	II	AM
July	15	Monday	Sector	I	PM
July	16	Tuesday	Sector	II	PM

This pattern was continued to the end of August.

Alternating census-periods, i.e. AM or PM, were assigned consecutively to scheduled weekdays in Sector III during July and August, starting with the July 1 AM census-period.

The assignment of census-periods to weekend days in June and September was done arbitrarily to ensure that the minimum of two days per stratum were sampled for calculating standard error.

Weekend days in July and August for Sectors I and II were assigned census-periods according to the following pattern:

July	6	Saturday	Sector II	AM
July	13	Saturday	Sector I	AM
July	20	Saturday	Sector II	PM
July	27	Saturday	Sector I	PM
August	3	Saturday	Sector II	AM
July	7	Sunday	Sector I	PM
July	14	Sunday	Sector II	AM
July	21	Sunday	Sector I	AM
July	28	Sunday	Sector II	PM
August	4	Sunday	Sector I	PM

This pattern was followed to the end of August.

Weekend days in July and August for Sector III were assigned census-periods according to the following pattern:

July	6	Saturday	Sector III	AM
July	20	Saturday	Sector III	PM
August	3	Saturday	Sector III	AM
August	17	Saturday	Sector III	PM
August	31	Saturday	Sector III	AM
July	7	Sunday	Sector III	PM
July	21	Sunday	Sector III	AM
August	4	Sunday	Sector III	PM
August	18	Sunday	Sector III	AM

Nine supplemental sampling periods were scheduled for June and September to ensure similar sampling intensities among strata and to provide the required minimum of two sampling periods per stratum for

calculating standard errors. Weekdays and weekends were selected independently using random number tables and were adjusted to accommodate logistical conflicts. Census-periods were assigned arbitrarily to meet these requirements.

Census Procedures

Boat counts were made to determine the mean number of boats present within specific strata. Boat count data and interview information were used to estimate angling effort and harvest in the various strata. The census crew was expected to make two boat counts in each area during one sampling period unless prevented from doing so by weather conditions or mechanical failures. The timing of boat counts within a census-period was not predetermined but was varied to limit sampling bias. Only boats with lines in the water were counted. After the boat counts were completed, usually within an hour, anglers were approached and interviewed.

Estimates of effort were based on partial censuses as well as completed censuses. When surveys were interrupted by poor weather, zero boat counts were assumed for the curtailed portion of the sampling period.

The sampling procedure did not predetermine the number of interviews to be made during a sampling period. The census crew collected catch, effort and angling residency information during the interview. After the boat count and scale sampling requirements were met, the survey crew attempted to interview as many angling parties as possible sampling every i'th boat (i equals frequency factor exceeding time allotment, i.e., 2X, 3X, 4X, etc.) when more boats were present than could be interviewed.

Representative scale samples and length measurements were non-selectively taken from harvested walleye and smallmouth bass. At least 50 walleye and 25 smallmouth bass were to be sampled from each sector in each of July, August and September. At least 50 walleye were to be sampled from each sector in June and an additional 25 smallmouth bass were to be sampled in Sector III in each of July and August. The decision to sample a party's fish was made before approaching the party and all walleye and/or smallmouth bass were sampled from the cooperating party to avoid bias.

Results of previous surveys indicate that most angling was done between 0800 and 2000 h so morning and afternoon periods were defined as six-hour periods, i.e., from 0800 to 1400 h and from 1400 to 2000 h, for data analysis purposes (Paine and Witherspoon 1977; Hector 1978; Sztramko 1979, 1980; Witzel 1981; Hyatt 1982, 1983, 1984, 1985). However, practical considerations, i.e., the eight-hour work day and travel time and the fact that previous surveys indicated censusing between 0800 and 0900 h provided little useful data (Hector 1978), restricted the census to five-hour periods.

Data Analysis

Census data were analysed using a computer program developed by the Lake Erie Fisheries Assessment Unit (Petzold 1980). Estimates of effort, catch and harvest were derived from observed values of same (based on six-hour morning and afternoon fishing periods). Daily estimates were summarized and presented as stratum estimates (Appendix II).

The analysis included scheduled sampling days in which reduced sampling effort was exerted because of bad weather. A second boat count during a census-period provided an estimate of variation in angling effort especially when adverse weather interfered with a

scheduled census.

Effort was reported in rod-hours and in angler-hours; however, the measure of rod-hours was used to derive catch and harvest estimates as it reflects the time actively spent fishing and the number of rods used. Sztramko and Paine (1984) explain that "during the 1974-80 period, angler-hours, which may have been more appropriately termed "user-hours", was used as a measure of participation in a fishery. Angler-hours was derived from the time which a fishing party actively fished and the number of persons in the fishing party, regardless of whether all individuals in the party fished."

Catch per unit of effort (CUE) for a stratum was calculated by dividing the actual total number of a species caught by the actual total number of rod-hours expended by all anglers in capturing these fish (Appendix II). This, the unweighted CUE, was used in this report as a measure of relative abundance and is used to interpret the distribution of catch and effort in the fishery.

RESULTS AND DISCUSSION

From 1976 to 1984, the Western Basin, Lake Erie creel census was confined to Sectors I and II and was done in July and August; however, the 1985 creel survey was expanded to include Sector III and all three sectors were surveyed in the months of June, July, August and September. Results of the 1985 census in the three-sectored study area for the months of June, July, August and September are presented; census results in Sectors I and II for July and August are also presented to facilitate direct comparison with previous surveys.

Between June 1 and September 30, 1985, 1,028 boat interviews with angling parties involving 3,171 angler contacts were conducted in Sectors I, II and III. Of these, 569 boat interviews involving 1,847 angler contacts were completed in Sectors I and II in July and August.

Distribution of Angling Effort

Anglers expended an estimated 144,460 ±22,339 (95% C.I.) rod-hours in the study area in June, July, August and September of 1985 (Table 2) and an estimated 83,409 ±20,152 (95% C.I.) in Sectors I and II in July and August, 1985. Fifty-four percent of the effort expended in the traditional July and August study period was spent in August; however, the effort expended in July and August represented only 65% of the total expenditure in this year's June to September survey period with 26% of the total being spent in September. Sector II received 57% of the total effort spent in the traditional study area, Sectors I and II; however, 13% of the total effort spent in this year's study area, Sectors I, II and III, was expended in Sector III.

Distribution of angling effort by area and month is shown in Table 3 with Area 1 Sector II receiving the most pressure during the study period.

An estimated 64,319 rod-hours were expended by weekday anglers and 80,138 rod-hours by weekend day anglers (Table 4). Each sector received a mean angling effort of 129 rod-hours during a weekday six-hour fishing period and 342 rod-hours during a weekend day six-hour fishing period (Table 5).

Weekdays and weekend days received mean angling pressures of 230 and 578 rod-hours respectively in the traditional survey area, Sectors I and II, during July and August.

Morning angling was more popular on both weekdays (26% of total) and weekend days (32% of total)(Table 4).

Angling effort increased from 1975 to 1978 (Table 6) then stabilized at lesser levels since then. The 1985 estimated effort of 83,409 rod-hours in Sectors I and II during July and August represents an increase of two percent over the 1984 estimated effort.

Catch and Harvest

An estimated 145,537 fish were caught during the study period in the study area of which 89,347 (61%) were harvested (Table 7). An estimated 95,929 fish were caught during July and August in Sectors I and II of which 60,198 (63%) were kept. The species contributing most numbers to the total catch were: walleye (58%), freshwater drum (25%), smallmouth bass (4%) and white bass (4%). Anglers kept 95% of the captured walleye which represented 90% of the total harvest in numbers. The smallmouth bass and yellow perch harvests each represented four percent of the total harvest in numbers. The contribution to catch and harvest by other species and summaries of catch and harvest by species during July and August in Sectors I and II are presented in Table 7.

Percentage of anglers seeking a particular species (species anglers) was: walleye (96%), smallmouth bass (12%) and yellow perch

(6%)(Table 8). Figures representing angler preference for other species are presented in Table 8.

Estimated catches during July and August in Sectors I and II were higher for white bass in 1985 than in 1984 (Table 9); those for walleye, freshwater drum, channel catfish, smallmouth bass, white perch and yellow perch were lower.

Walleye Fishery

Effort

Anglers expressing a preference for walleye expended 98% of the total rod-hours spent in the census area (Table 10).

Catch Per Unit of Effort

Walleye anglers caught an estimated 0.545 walleye per rod-hour of angling in Sectors I, II and III in June, July, August and September, 1985 (Table 11). The best angling success rate occurred in Sector I during July (0.813 walleye per rod-hour) and the poorest was in Sector III during August (0.072 walleye per rod-hour). The catch per unit of effort (CUE) for the whole study area was better in July (0.673) than in August (0.550), and June and September were lower (0.328 and 0.460 respectively). Over the season, the walleye angling success rate was better in Sector I (0.638) than in either Sector II (0.571) or Sector III (0.142).

The CUE for walleye anglers in June, July, August and September in each area of Sectors I, II and III is shown in Table 12. The highest success rate (CUE) occurred in Area 1 of Sector II in July (0.883 walleye per rod-hour). The September success rate was nearly as high (0.833 walleye per rod-hour) in this same area.

Since 1976, in seven years out of ten, the CUE has been higher in July than in August and, in eight years out of ten, the CUE in Sector

II has been higher than in Sector I (Table 13). The 1985 walleye anglers had a better success rate in July than in August, and both months were better than June or September, but, in every census month, a better success rate was enjoyed in Sector I than in Sector II or III.

The CUE of walleye by walleye anglers was first calculated using observed catches and observed effort in 1978 (Table 18). The CUE for walleye anglers increased from 1978 to 1979 then decreased each year since from 0.886 walleye per rod-hour in 1979 to 0.396 in 1983; however, the CUE's in 1984 and 1985 for July and August, Sectors I and II were higher at 0.636 walleye per rod-hour in 1984 and 0.684 in 1985.

Catch and Harvest

An estimated 84,431 ±15,126 (95% C.I.) walleye were caught in the study area in 1985 (Table 7). Of these, 80,348 (95% of the catch) or 77,841 kg were harvested (Table 20). The estimated walleye catch in the traditional study area, Sectors I and II, during July and August was 59,465 ±14,807 (95% C.I.). Of these, 56,777 (95% of the catch) or 45,299 kg were harvested. Of the total estimated walleye catch (Sectors I, II and III in June, July, August and September), 51% was taken in Sector II (Table 14) and only three percent came from Sector III. Catches in each of July and August contributed 36% of the total catch and September's catch represented 23% of the total catch. The highest portion (42%) of the total walleye catch came from Area 2 Sector I (Table 15) and the second highest portion (25%) came from Area 1 Sector II.

Walleye anglers caught more walleye through the week than on weekends (Table 16) although more effort (165%) was expended on an

average weekend day than on an average weekday. Catch and harvest were higher on an average weekend day (119% and 126% higher respectively) than on an average weekday but the CUE was higher on the average weekday.

Walleye catches by walleye anglers were higher in the morning (AM) census-period in both Sectors I and II than in the afternoon (PM) period and about the same in AM and PM census-periods in Sector III (Table 17). The CUE was higher in the morning period (AM) than in the afternoon period (PM) in all three sectors.

The 1985 walleye estimated catch was 13% lower than the 1984 catch although the 1985 harvest was 47% higher than the 1984 harvest (Table 18) for the months of July and August in Sectors I and II. The 1985 harvested walleye were larger individuals than the 1984 walleye, consisting of mainly three-year-old fish, whereas those harvested in 1984 were predominantly two-year-olds (Hyatt 1985). Angling in June and September accounted for an estimated catch of 22,390 walleye in Sectors I and II which represents 27% of the total estimated catch in Sectors I and II. The estimated catch of 2,577 walleye in Sector III in June, July, August and September represents three percent of the total estimated walleye catch in all three sectors in all four months.

Age Composition

Two-year-old walleye contributed the most numbers to the angler harvest in seven of the past eleven years (1975-1985) (Figure 2). Three-year-olds contributed the most to the 1985 angler harvest (75% by number and 61% by weight) (Table 20). Mean length and weight of age-groups of harvested walleye are presented in Table 19. The mean total length and weight of harvested walleye (all age-groups) was 450 mm and 977 g respectively.

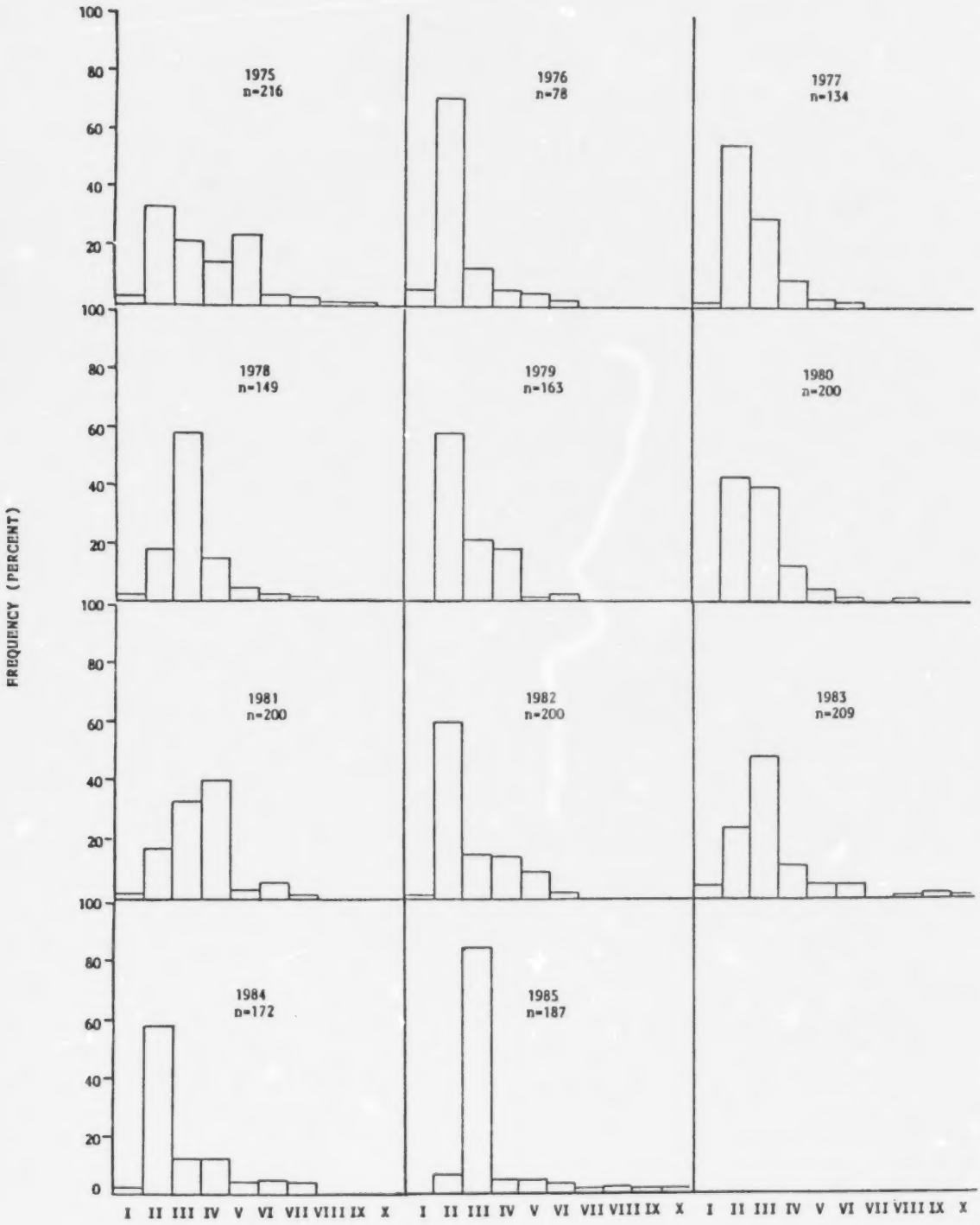

Figure 2. Age frequency histograms for walleye harvested by anglers during July and August in Sectors I and II of the Western Basin, Lake Erie, 1975-1985.

Smallmouth Bass Fishery

Effort

Anglers who expressed a preference for smallmouth bass expended 13% of the total rod-hours spent in the Western Basin (Table 10).

Catch Per Unit of Effort

Smallmouth bass anglers caught an estimated 0.244 smallmouth bass per rod-hour of angling in Sectors I, II and III in June, July, August and September, 1985 (Table 21). The best angling success rate occurred in Sector III in September (1.302 smallmouth bass per rod-hour) and the poorest was in Sector II in August (0.093 smallmouth bass per rod-hour). The CUE for the whole study area was better in June (0.433) than in July, August or September. Over the season, the smallmouth bass angling success rate was better in Sector III (0.575) than in Sector I (0.209) or in Sector II (0.234).

The CUE for smallmouth bass anglers in June, July, August and September in each area of Sectors I, II and III is shown in Table 22. The highest CUE was 1.538 smallmouth bass per rod-hour in Area 2 of Sector III during September.

Catch and Harvest

An estimated 6,225 ±1,275 (95% C.I.) smallmouth bass were angled from the study area in 1985 (Table 7). Of these, 3,867 (62% of the catch) or 3,096 kg (Table 27) were harvested. The estimated smallmouth bass catch in the traditional study area, Sectors I and II, during July and August was 3,576 ±883 (95% C.I.). Of these, 2,253 (63% of the catch) or 1,492 kg were harvested.

Of the total estimated smallmouth bass catch, (Sectors I, II and III in June, July, August and September) 51% was taken in Sector II (Table 23), 34% came from Sector I and 15% was taken in Sector III.

Forty-four percent of the total catch was taken in July and 27% was taken in September.

The estimated smallmouth bass catch for July and August in Sectors I and II decreased 56% from 1984 (Table 9). Angling in June and September accounted for an estimated catch of 1,720 smallmouth bass in Sectors I and II which represents 33% of the total estimated smallmouth bass catch in these sectors in the four-month survey period.

Area 2, Sector I contributed the highest portion (29%) of the total smallmouth bass catch and Areas 1, 2 and 3 of Sector II contributed 14%, 16% and 17% respectively of the total catch (Table 24).

Catch and harvest were higher on the average weekend day than on the average weekday (22% and 32% higher respectively) but the CUE was higher on weekdays (Table 25).

Smallmouth bass catches and CUE were higher in the morning (AM) period than in the PM period in Sector I and higher in the afternoon (PM) period in Sectors II and III (Table 26). The highest success rate occurred in Sector III during the afternoon (PM) period (0.917 smallmouth bass per rod-hour) and the poorest rate was in Sector I during the afternoon (PM) period (0.184 smallmouth bass per rod-hour).

Age Composition

In 1985, three-year-old smallmouth bass made up 36% by number of the harvested smallmouth bass (Table 27; Figure 3), with two-, four-, five-, six- and seven-year-olds contributing 4%, 30%, 21%, 7% and 2% respectively.

Mean length and weight of age-groups of harvested smallmouth bass are presented in Table 28. The mean total length and weight of

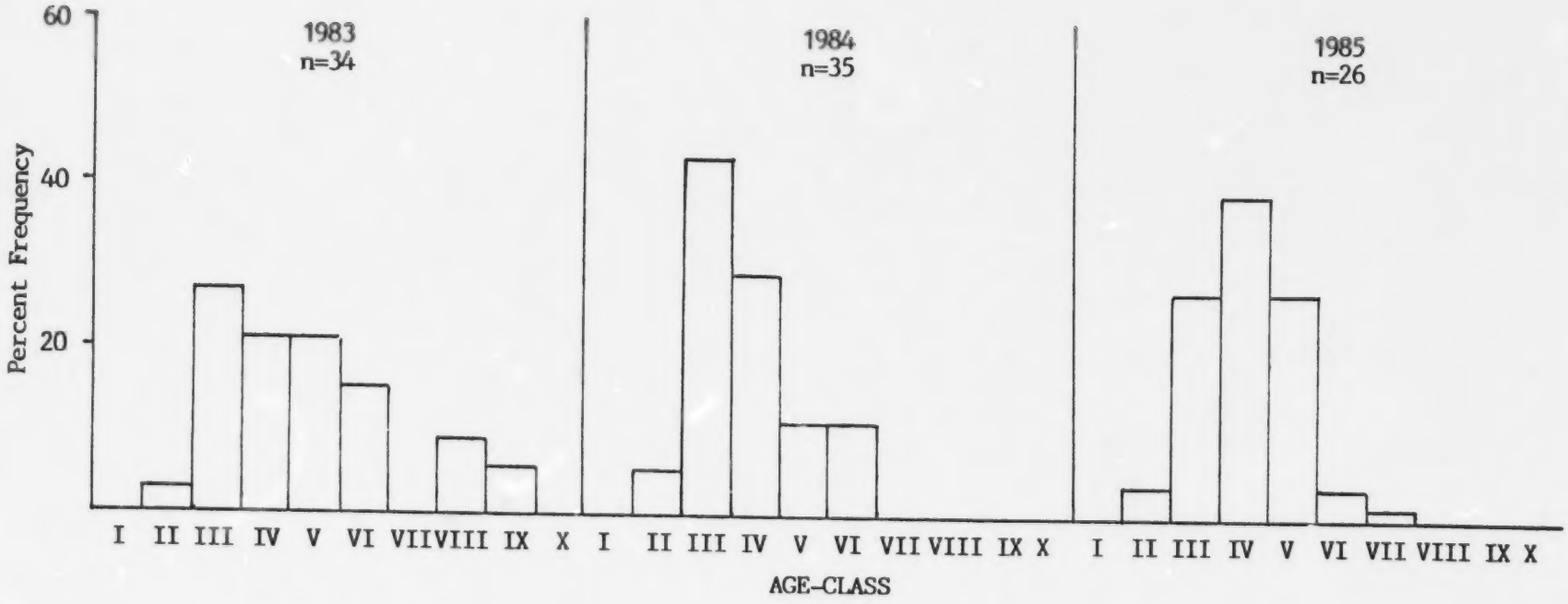

Figure 3. Age frequency histogram for smallmouth bass harvested by anglers during July and August in Sectors I and II of the Western Basin, Lake Erie, 1983-1985.

harvested smallmouth bass (all age-groups) was 352 mm and 800 g respectively.

Residency Status

Non-residents of Ontario constituted 84% of interviewed anglers in 1985 (Table 29). Ninety-six percent of anglers interviewed in Sectors I and II in July and August were non-residents in 1985 (91% in 1984)(Hyatt 1985).

In Sectors I and II for the season, 99% and 92% respectively of the interviewed anglers were non-residents whereas 10% of those interviewed in Sector III were non-residents.

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Table 1. Creel census schedule in the Western Basin of Lake Erie, 1985.[a]

Date	Sector I	Sector II	Sector III	Date	Sector I	Sector II	Sector III	Date	Sector I	Sector II	Sector III
Jun 1		AE		Jul 13	AE			Aug 24	PE		
Jun 2	PE		PE[b]	Jul 14		AE		Aug 25		PE	
Jun 3	AD[c]			Jul 15	PD			Aug 26		AD	
Jun 4		AD[d]	PD[e]	Jul 16		PD		Aug 27	PD		
Jun 5		AD		Jul 17	AD		PD	Aug 28		PD	
Jun 6	PD	PD[f]		Jul 18		AD	AD	Aug 29	AD		PD
Jun 7		PD[d]		Jul 19	PD		PD	Aug 30		AD[k]	AD
Jun 8			PE	Jul 20		PE	PE	Aug 31		AE[k]	AE
Jun 9		AE		Jul 21	AE		AE				
Jun 10-14		OFF		Jul 22-26		OFF		Sept 1			AE
Jun 15	AE			Jul 27	PE			Sept 2-6		OFF	
Jun 16	PE[g]		AE	Jul 28		PE		Sept 7		AE	
Jun 17			PD	Jul 29		PD	AD	Sept 8	PE		
Jun 18	AD			Jul 30	AD		PD	Sept 9		PD	
Jun 19		AD		Jul 31		AD		Sept 10			PD[r]
Jun 20			AD					Sept 11	AD[r] PD		
Jun 21	PD			Aug 1	PD		AD	Sept 12		AD	
Jun 22		PE		Aug 2		PD	PD	Sept 13			AD
Jun 23	AE			Aug 3		AE	AE	Sept 14			AE
Jun 24-28		OFF		Aug 4	PE		PE	Sept 15		AE	
Jun 29			AE	Aug 5-9		OFF		Sept 16-20		OFF	
Jun 30		PE		Aug 10	AE			Sept 21	PE		PE
				Aug 11		AE		Sept 22		PE[m]	PE
Jul 1		AD[p]	AE[o]	Aug 12	AD		AD	Sept 23	AD		
Jul 2	PD		PD	Aug 13		AD	PD	Sept 24		PD	AD
Jul 3		PD	AD	Aug 14	PD		AD	Sept 25			PD
Jul 4	AE[q]			Aug 15		PD		Sept 26	PD[r]		
Jul 5		AD		Aug 16	AD			Sept 27		AD	
Jul 6		AE	AE	Aug 17		PE[h]	PE	Sept 28	AE[n]	PE	
Jul 7	PE		PE	Aug 18	AE		AE	Sept 29	AE		
Jul 8-12		OFF		Aug 19-23		OFF		Sept 30		OFF	

[a] Census-periods and day-types were classified as follows: A=AM, P=PM, D=weekday and E=weekend day.

[b] Cancelled because of mechanical problems and conducted on June 22.

[c] Cancelled because of mechanical problems and conducted on June 10.

[d] Exchanged the June 4 Sector II AM census with the June 7 Sector II PM census.

[e] Cancelled because of mechanical problems and conducted on June 5.

[f] Cancelled because of illness and conducted on June 25.

[g] Cancelled because of illness and conducted on June 23.

[h] Censused Sector II in AM instead of scheduled PM.

[k] Censused Sector II in PM instead of scheduled AM.

[m] Censused Sector II in PM on September 15 instead of scheduled September 22.

[n] Censused Sector I in AM on September 22 instead of scheduled September 28.

[o] Treated as a weekend day as most anglers in Sector III are Canadian citizens

[p] Treated as a weekday as most anglers in Sector II are U.S. citizens.

[q] Treated as a weekend day as most anglers in Sector I are U.S. citizens.

[r] Weathered out and not rescheduled or conducted.

Table 2. Distribution of angling effort by sector and month in the Western Basin, Lake Erie, 1985.

Month	Effort[a]	Sector I	Sector II	Sector III	Total	Percent of total
June	R	4,874	1,933	5,678	12,485	9
	A	4,874	1,933	5,618	12,425	
July	R	10,161	25,184	7,537	42,882	30
	A	10,265	25,220	7,774	43,259	
August	R	23,333	24,731	3,129	51,193	35
	A	23,388	25,266	3,361	52,015	
September	R	15,453	20,616	1,831	37,900	26
	A	15,523	20,616	1,848	37,987	
Total	R	53,821 (33,494)[b]	72,464 (49,915)[b]	18,175	144,460 (83,409)[c]	100
	A	54,050	73,035	18,601	145,686	
Percent of total	R	37	50	13		100

[a] 'R' is the estimated rod-hours.
'A' is the estimated angler-hours.

[b] Total estimated rod-hours expended in July and August.

[c] Total estimated rod-hours expended in Sectors I and II only during July and August.

Table 3. Distribution of angling effort by sector, area and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Area 1	2	3	4	5	Total
June	I	465	4,409	-	-	-	4,874
	II	468	825	640	0	0	1,933
	III	3,519	2,159	-	-	-	5,678
July	I	525	9,636	-	-	-	10,161
	II	15,222	5,296	2,900	1,766	0	25,184
	III	4,335	3,202	-	-	-	7,537
August	I	2,788	20,544	-	-	-	23,332
	II	15,883	1,100	3,819	3,516	413	24,731
	III	2,036	1,093	-	-	-	3,129
September	I	1,943	13,510	-	-	-	15,453
	II	240	2,507	13,852	3,176	840	20,616
	III	928	902	-	-	-	1,831
Total	I	5,721	48,099	-	-	-	53,820
	II	31,813	9,728	21,211	8,458	1,253	72,464
	III	10,818	7,356	-	-	-	18,175
Total[b]	I	3,313	30,180	-	-	-	33,493
	II	31,105	6,396	6,719	5,282	413	49,915
	III	6,371	4,295	-	-	-	10,666

[a] Effort estimated in rod-hours.

[b] Totals for July and August only.

Table 4. Distribution of angling effort by sector, day-type, census-period and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Day-type: Weekday, Census-period: AM	Weekday, Census-period: PM	Weekend, Census-period: AM	Weekend, Census-period: PM
June	I	955	1,116	1,813	990
	II	420	870	418	225
	III	1,235	1,890	1,239	1,314
July	I	2,475	907	4,516	2,262
	II	8,349	6,049	2,329	8,457
	III	2,941	1,205	1,768	1,624
August	I	10,753	2,641	5,552	4,386
	II	1,911	6,398	14,509	1,913
	III	425	812	932	960
September	I	6,360	3,300	3,896	1,897
	II	1,830	817	9,972	7,996
	III	180	480	536	634
Study period	Study area	37,834 (23,488)[c]	26,485 (15,995)	47,480 (26,906)	32,658 (17,018)
Percent of total		26 (28)[c]	18 (19)	33 (32)	23 (20)
(AM + PM)[b]		64,319 (39,483)[c]		80,138 (43,924)	
Percent of (AM + PM)		45 (47)[c]		55 (53)	

[a] Effort estimated in rod-hours.

[b] Represents the total effort expended on weekdays or on weekends regardless of census-period.

[c] Values within parentheses represent Sectors I and II only during July and August.

Table 5. Distribution of mean angling effort by sector, day-type, census-period and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Day-type: Weekday, Census-period: AM	Weekday, PM	Weekend day, AM	Weekend day, PM
June	I	48	56	181	99
	II	21	44	42	23
	III	62	95	124	131
July	I	113	41	502	251
	II	380	275	259	940
	III	134	55	196	180
August	I	512	126	555	439
	II	91	305	1,451	191
	III	20	39	93	96
September	I	318	165	390	190
	II	92	41	997	800
	III	9	24	54	63
Study period	I	248(309)[d]	96(83)	405(530)	244(350)
	II	151(239)	170(289)	698(886)	477(546)
	III	58	53	115	116
Study period	Study area	152 (273)[e]	106 (186)	406 (708)	279 (448)
Study period, study area[b] and census-period		129 (230)[e]		342 (578)	
Study period, study area,[c] census-period and day-type		197 (336)[e]			

[a] Effort was estimated in rod-hours and was based on a six-hour fishing period.

[b] Represents the mean angling effort expended during a weekday or weekend day six-hour fishing period regardless of census-period, sector or month.

[c] Represents the mean angling effort expended during a six-hour fishing period regardless of census-period, day-type, sector or month.

[d] Values within parentheses represent July and August only.

[e] Values within parentheses represent Sectors I and II only during July and August only.

Table 6. Distribution of angling effort in the Western Basin, Lake Erie, 1975-1985.[a]

Month	Sector	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
July	I	16,350	31,251	28,487	32,087	7,794	11,131	25,700	22,095	22,659	6,676	10,161
	II	6,957	23,475	27,828	38,542	26,642	42,354	41,995	28,422	12,838	34,088	25,184
August	I	8,805	17,603	41,916	41,773	17,177	10,582	19,564	24,672	38,938	5,274	23,333
	II	13,734	24,847	27,948	33,696	43,942	27,170	49,140	31,378	42,214	35,408	24,731
Study period	I	25,155	48,854	70,403	73,860	24,971	21,713	45,264	46,767	61,597	11,950	33,494
	II	20,691	48,322	55,776	72,238	70,584	69,524	91,134	59,800	55,052	69,496	49,915
Study period	Study area	45,846	97,176	126,179	146,098	95,555	91,237	136,398	106,566	116,649	81,446	83,409

[a] Effort was estimated in rod-hours.

Table 7. Catch and harvest estimates (in number) of the sport fishery in the Western Basin of Lake Erie, 1985.

Species	Sector[a] I Catch	I Harvest	II Catch	II Harvest	III Catch	III Harvest	Total catch[b]	Total harvest[b]	% Total catch	% Total harvest
Walleye	38,391 (28,358)	36,300 (27,206)	43,463 (31,106)	41,511 (29,571)	2,577 (1,331)	2,537 (1,291)	84,431 (59,464)	80,348 (56,777)	58	90
Freshwater drum	11,847 (8,525)	183 (182)	20,933 (16,476)	0 (0)	4,137 (2,771)	0 (0)	36,917 (25,001)	183 (182)	25	<1
Smallmouth bass	2,098 (1,487)	1,091 (920)	3,199 (2,090)	2,097 (1,333)	928 (225)	679 (198)	6,225 (3,577)	3,867 (2,253)	4	4
White bass	1,543 (271)	56 (7)	3,037 (1,836)	455 (292)	879 (239)	215 (54)	5,459 (2,107)	726 (299)	4	1
Channel catfish	757 (595)	121 (121)	3,311 (3,070)	403 (393)	372 (202)	78 (47)	4,440 (3,665)	602 (514)	3	1
White perch	567 (240)	0 (0)	1,974 (952)	19 (0)	208 (29)	52 (0)	2,749 (1,192)	71 (0)	2	<1
Yellow perch	186 (160)	85 (60)	1,035 (724)	309 (113)	3,558 (1,599)	2,848 (1,304)	4,779 (884)	3,242 (173)	3	4
Rock bass	21 (21)	0 (0)	0 (0)	0 (0)	260 (200)	70 (24)	281 (21)	70 (0)	<1	<1
Sunfish	0 (0)	0 (0)	0 (0)	0 (0)	198 (0)	198 (0)	198 (0)	198 (0)	<1	<1
Carp	0 (0)	0 (0)	18 (18)	0 (0)	0 (0)	0 (0)	18 (18)	0 (0)	<1	0
Yellow bullhead	0 (0)	0 (0)	0 (0)	0 (0)	16 (0)	16 (0)	16 (0)	16 (0)	<1	<1
Gizzard shad	0 (0)	0 (0)	0 (0)	0 (0)	24 (24)	24 (24)	24 (0)	24 (0)	<1	<1
Total	55,410 (39,657)	37,836 (28,496)	76,970 (56,272)	44,794 (31,702)	13,157 (6,620)	6,717 (2,942)	145,537 (95,929)	89,347 (60,198)	100	100

[a] Values without parentheses represent June, July, August and September; values within parentheses represent July and August.

[b] Values within parentheses represent the catch and harvest from Sectors I and II only during July and August.

Table 8. Percentage of anglers seeking particular species in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Species sought									
		Walleye	Smallmouth bass	Channel catfish	White perch	Yellow perch	White bass	Rock bass	Freshwater drum	Sunfish	Yellow bullhead
June	I	100	0	0	0	0	3	0	0	0	0
	II	100	4	0	0	0	7	0	0	0	0
	III	93	6	1	6	9	4	0	0	0	0
July	I	100	21	3	0	1	2	0	2	0	0
	II	99	15	2	<1	1	5	0	<1	0	0
	III	93	4	0	0	22	0	1	0	0	0
August	I	99	15	3	0	2	0	0	0	0	0
	II	100	6	2	0	2	1	0	0	0	0
	III	83	11	0	0	11	2	0	0	0	0
September	I	100	15	0	0	4	2	0	0	0	0
	II	100	19	1	0	3	1	0	0	0	0
	III	45	21	12	0	52	6	9	0	3	3
Study period	Study area[b]	96 (99)	12 (14)	2 (2)	<1 (<1)	6 (2)	2 (2)	<1	<1 (1)	<1	<1

[a] Angler preference was expressed as a percentage of species anglers over all anglers. In some cases anglers sought more than one species, while in others no preference was indicated.

[b] Values within parentheses represent Sectors I and II only during July and August.

Table 9. Estimated catch (in number) of walleye and other species from the Western Basin, Lake Erie, sport fishery during July and August, 1975-85.

Sector	Year	Walleye	White bass	Freshwater drum	Smallmouth bass	Yellow perch	Channel catfish	White perch
I	1975[a]	4,778	2,549	14,194	1,996	258	-	0
	1976	23,619	1,154	20,052	1,438	1,508	1,238	0
	1977	40,283	170	35,263	1,664	2,784	941	0
	1978	48,320	694	49,405	5,243	3,830	3,092	0
	1979	18,048	1,008	14,460	1,587	899	1,024	0
	1980	15,254	37	15,059	1,890	984	1,088	0
	1981	21,981	1,025	23,005	1,941	1,235	2,556	172
	1982	20,795	1,287	23,279	1,852	1,247	2,777	618
	1983	26,060	1,651	17,770	6,268	81	1,139	1,991
	1984	5,757	91	5,700	1,245	696	642	220
	1985	28,358	271	8,525	1,487	160	595	240
II	1975[a]	2,929	5,947	3,901	2,705	1,760	-	0
	1976	26,790	731	25,146	1,332	3,721	3,555	0
	1977	30,278	367	38,928	1,429	3,743	1,381	0
	1978	73,121	1,204	48,393	2,385	7,215	5,470	0
	1979	70,597	2,442	58,234	2,663	4,780	5,208	0
	1980	43,319	1,176	61,846	2,942	7,644	9,707	0
	1981	50,486	640	35,675	4,266	3,534	5,843	0
	1982	29,737	2,180	38,462	6,103	3,151	5,599	1,980
	1983	21,859	1,664	20,463	14,517	108	1,067	2,397
	1984	62,557	1,521	30,570	6,826	243	7,664	2,015
	1985	31,106	1,836	16,476	2,090	724	3,070	952
III[b]	1985	1,331	239	2,771	225	1,599	207	29
Study[c] area	1975[a]	7,707	8,496	18,095	4,701	2,018	-	0
	1976	50,409	1,885	45,198	2,770	5,229	4,793	0
	1977	70,561	537	74,191	3,093	6,527	2,322	0
	1978	121,441	1,898	97,798	7,628	11,045	8,562	0
	1979	88,645	3,450	72,694	4,250	5,679	6,232	0
	1980	58,573	1,213	76,905	4,832	8,628	10,795	0
	1981	72,467	1,666	58,680	6,206	4,770	8,400	172
	1982	50,532	3,467	61,741	7,955	4,398	8,376	2,598
	1983	47,919	3,315	38,233	20,784	190	2,206	4,388
	1984	68,314	1,611	36,270	8,072	940	8,306	2,236
	1985	59,464	2,107	25,001	3,577	884	3,665	1,192

[a] The catch of species other than walleye was taken between June 17 and September 30, 1975.

[b] Sector III was not included in the 1975-1984 censuses.

[c] Study area excluding Sector III.

Table 10. Effort by species anglers expressed as a percentage of total angling effort (rod-hours) in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Species sought: Walleye	Smallmouth bass	Yellow perch	Channel catfish	White bass	White perch	Freshwater drum	Rock bass	Sunfish	Yellow bullhead
June	I	100	0	0	0	<1	0	0	0	0	0
	II	100	4	0	0	7	0	0	0	0	0
	III	90	3	10	2	6	4	0	0	0	0
July	I	100	21	2	4	2	0	2	0	0	0
	II	98	17	2	2	3	<1	<1	0	0	0
	III	94	6	22	0	0	0	0	1	0	0
August	I	99	15	2	2	0	0	0	0	0	0
	II	100	4	1	2	1	0	0	0	0	0
	III	85	9	11	0	5	0	0	0	0	0
September	I	100	13	1	0	<1	0	0	0	0	0
	II	100	21	7	1	1	0	0	0	0	0
	III	45	27	42	8	6	0	0	10	7	4
Study period	Study area[b]	98 (99)	13 (13)	4 (1)	2 (3)	2 (1)	<1 (<1)	<1 (<1)	<1	<1	<1

[a] Some anglers sought more than one species while others indicated no preference.

[b] Values within parentheses represent Sectors I and II only during July and August.

Table 11. Catch per unit of effort (CUE) for walleye caught by sector and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Walleye anglers	All anglers
June	I	0.423	0.423
	II	0.353	0.353
	III	0.162	0.150
	I&II	0.404	0.404
	I,II&III	0.328	0.320
July	I	0.813	0.813
	II	0.738	0.731
	III	0.146	0.143
	I&II	0.769	0.765
	I,II&III	0.673	0.666
August	I	0.644	0.644
	II	0.521	0.521
	III	0.072	0.061
	I&II	0.589	0.589
	I,II&III	0.550	0.542
September	I	0.486	0.486
	II	0.457	0.457
	III	0.237	0.073
	I&II	0.465	0.465
	I,II&III	0.460	0.438
Study period	I	0.638 (0.721)[b]	0.637 (0.721)
	II	0.571 (0.649)	0.570 (0.645)
	III	0.142 (0.125)	0.122 (0.117)
Study period	Study area	0.545 (0.684)[c]	0.533 (0.682)

[a] CUE represents the observed number of fish caught divided by the observed effort in rod-hours both for walleye anglers and all anglers.

[b] Values within parentheses represent July and August.

[c] Values within parentheses represent Sectors I and II only during July and August.

Table 12. Catch per unit of effort (CUE) for walleye caught by sector, area and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Area				
		1	2	3	4	5
June	I	0.451	0.419			
	II	0.159	0.562	0.367	-[b]	-[b]
	III	0.241	0.086			
July	I	0.392	0.866			
	II	0.883	0.551	0.562	0.637	-[b]
	III	0.148	0.142			
August	I	0.587	0.657			
	II	0.404	0.686	0.586	0.658	0.605
	III	0.076	0.064			
September	I	0.454	0.503			
	II	0.833	0.438	0.426	0.566	0.381
	III	0.277	0.118			

[a] CUE represents the observed number of fish caught by walleye anglers divided by the corresponding observed effort in rod-hours.

[b] No walleye anglers were interviewed in this area.

Table 13. Catch per unit of effort (CUE) for walleye caught by sector and month in the Western Basin, Lake Erie, 1975-85.[a]

Month	Year	Sector I	Sector II	Sector III
June[b]	1985	0.423	0.353	0.162[b]
July	1975	0.148	0.130	
	1976	0.648	0.794	
	1977	0.549	0.771	
	1978	0.871	1.107	
	1979	0.885	1.407	
	1980	0.605	0.588	
	1981	0.470	0.602	
	1982	0.501	0.731	
	1983	0.360	0.391	
	1984	0.477	1.051	
	1985	0.813	0.738	0.146[b]
August	1975	0.313	0.172	
	1976	0.224	0.347	
	1977	0.493	0.321	
	1978	0.425	0.561	
	1979	0.532	0.729	
	1980	0.628	0.813	
	1981	0.425	0.577	
	1982	0.368	0.404	
	1983	0.407	0.410	
	1984	0.450	0.498	
	1985	0.644	0.521	0.072[b]
September[b]	1985	0.486	0.457	0.237

[a] CUE represents the observed number of fish caught by walleye anglers divided by the corresponding observed effort in rod-hours.

[b] June and September and Sector III were not censused 1975-1984.

Table 14. Distribution of the walleye catch by sector and month in the Western Basin, Lake Erie, 1985.

Month	Sector	Estimated catch (number)	Percent of total catch
June	I	2,234	3
	II	881	1
	III	1,060	1
July	I	8,913	11
	II	19,846	24
	III	1,195	1
August	I	19,445	23
	II	11,260	13
	III	136	<1
September	I	7,799	9
	II	11,476	14
	III	186	<1
Study period	I	38,391 (28,358)[a]	45 (48)[b]
	II	43,463 (31,106)	51 (52)
	III	2,577 (1,331)	3
Study period	Study area	84,431 (59,464)[c]	100

[a] Values within parentheses represent July and August only.

[b] Values within parentheses represent the percent of total catch from Sectors I and II only during July and August.

[c] Values within parentheses represent Sectors I and II only during July and August.

Table 15. Distribution of the walleye catch and harvest by sector, area and month in the Western Basin, Lake Erie, 1985.

Month	Sector	Area	Estimated catch (number)	Percent of total catch	Estimated harvest (number)	Percent kept
June	I	1	312	<1	258	83
		2	1,922	2	1,837	96
	II	1	60	<1	60	100
		2	528	1	528	100
		3	293	<1	293	100
		4	-[a]			
		5	-[a]			
	III	1	841	1	841	100
		2	219	<1	219	100
	Study area		4,175	5	4,036	97
July	I	1	241	<1	234	97
		2	8,673	10	8,105	93
	II	1	13,998	17	13,451	96
		2	3,021	4	2,909	96
		3	1,710	2	1,456	85
		4	1,117	1	1,117	100
		5	-[a]			
	III	1	861	1	821	95
		2	334	<1	334	100
	Study area		29,955	35	28,427	95
August	I	1	1,796	2	1,651	92
		2	17,649	21	17,216	98
	II	1	7,041	8	6,437	91
		2	763	1	763	100
		3	1,366	2	1,350	99
		4	1,838	2	1,838	100
		5	251	<1	251	100
	III	1	116	<1	116	100
		2	20	<1	20	100
	Study area		30,840	37	29,642	96
September	I	1	731	1	701	96
		2	7,068	8	6,297	89
	II	1	200	<1	200	100
		2	1,346	2	1,285	95
		3	7,171	8	6,860	96
		4	2,440	3	2,393	98
		5	320	<1	320	100
	III	1	178	<1	178	100
		2	8	<1	8	100
	Study area		19,462	23	18,242	94
Study period	Study area		84,432	100	80,347	95

[a] Angling parties weren't present within this area during interview periods.

Table 16. Distribution of catch and effort statistics for walleye anglers by day-type in the Western Basin, Lake Erie, 1985.

Sector	Statistic	Day-type: Weekday	Mean[d]	Weekend day	Mean[d]
I	Rod-hours[a]	28,508 (16,777)[e]	343 (390)	25,154 (16,558)	645 (871)
	Catch[b]	22,213 (15,839)	268 (368)	16,114 (12,456)	413 (656)
	Harvest[b]	20,620 (15,044)	248 (350)	15,637 (12,119)	401 (638)
	CUE[c]	0.671 (0.760)		0.619 (0.702)	
II	Rod-hours[a]	26,588 (22,651)	320 (527)	45,391 (26,780)	1,164 (1,409)
	Catch[b]	17,527 (15,187)	211 (353)	25,740 (15,723)	660 (828)
	Harvest[b]	16,587 (14,311)	200 (333)	24,727 (15,064)	634 (793)
	CUE[c]	0.626 (0.656)		0.536 (0.641)	
III	Rod-hours[a]	7,841 (5,046)	94 (117)	7,857 (4,722)	201 (249)
	Catch[b]	1,752 (911)	21 (21)	910 (324)	23 (17)
	Harvest[b]	1,752 (911)	21 (21)	910 (324)	23 (17)
	CUE[c]	0.210 (0.190)		0.107 (0.083)	
Study area	Rod-hours[a]	62,937 (39,428)[f]	758 (475)	78,402 (43,338)	2,010 (1,111)
	Catch[b]	41,492 (31,026)	500 (374)	42,764 (28,179)	1,097 (723)
	Harvest[b]	38,959 (29,355)	469 (354)	41,274 (27,183)	1,058 (697)
	CUE[c]	0.597 (0.697)		0.515 (0.675)	

[a] Estimated angling effort exerted by walleye anglers only.

[b] Catch and harvest estimates in number of walleye.

[c] CUE's for walleye caught, derived from observed values.

[d] Mean daily estimate of effort (rod-hours). Catch and harvest (by number) based on a six-hour fishing period.

[e] Values in parentheses in "Sectors I, II and III" represent July and August only.

[f] Values in parentheses in "Study area" represent Sectors I and II only during July and August.

Table 17. Distribution of catch and effort statistics for walleye anglers by census-period in the Western Basin, Lake Erie, 1985.

Sector	Statistic	Census-period AM	Census-period PM
I	Rod-hours[a]	36,321 (23,296)[d]	17,342 (19,589)
	Catch[b]	28,523 (22,546)	9,805 (9,199)
	Harvest[b]	26,615 (21,455)	9,642 (8,801)
	CUE[c]	0.733 (0.877)	0.552 (0.632)
II	Rod-hours[a]	39,737 (17,547)	32,242 (22,333)
	Catch[b]	25,794 (14,090)	17,474 (13,369)
	Harvest[b]	24,546 (13,510)	16,768 (12,773)
	CUE[c]	0.640 (0.640)	0.522 (0.607)
III	Rod-hours[a]	8,361 (5,516)	7,336 (4,253)
	Catch[b]	1,321 (1,068)	1,341 (168)
	Harvest[b]	1,321 (1,068)	1,341 (168)
	CUE[c]	0.149 (0.181)	0.133 (0.068)

[a] Angling effort exerted by walleye anglers only.

[b] Catch and harvest estimates in number of waileye.

[c] CUE's for walleye caught, derived from observed values.

[d] Values within parentheses represent July and August only.

Table 18. Comparative sport fishery statistics for walleye in the Western Basin, Lake Erie, during July and August, 1975-85.

Sector	Statistic	Year										
		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
I	Rod-hours[a]	25,154	48,854	70,403	73,860	24,971	21,713	45,264	46,767	61,597	11,950	33,494
	Catch[b]	4,778	23,619	40,283	48,320	18,048	15,254	21,981	20,795	26,060	5,757	28,358
	Harvest[b]	4,453	23,225	40,043	45,325	16,079	14,292	21,653	19,749	24,027	4,426	27,206
	% Kept	93	98	99	94	89	94	99	95	92	77	96
	CUE[c]	0.190	0.484	0.572	0.654	0.723	0.703	0.486	0.445	0.423	0.482	0.847
	CUE[d]	-	-	-	0.693	0.678	0.618	0.446	0.424	0.388	0.463	0.721
II	Rod-hours[a]	20,692	48,322	55,776	72,238	70,584	69,524	91,134	59,800	55,052	69,496	49,915
	Catch[b]	2,929	26,790	30,278	73,121	70,597	43,319	50,486	29,737	21,859	62,557	31,106
	Harvest[b]	2,719	25,804	28,911	66,733	61,686	42,064	48,146	28,309	16,150	34,278	29,571
	% Kept	93	96	95	91	87	97	95	95	74	55	95
	CUE[c]	0.142	0.554	0.543	1.012	1.000	0.623	0.554	0.497	0.397	0.900	0.623
	CUE[d]	-	-	-	0.881	0.997	0.710	0.589	0.584	0.404	0.714	0.649
Study area	Rod-hours[a]	45,846	97,176	129,179	146,098	95,555	91,237	136,398	106,566	116,649	81,446	83,409
	Catch[b]	7,707	50,949	70,561	121,441	88,646	58,573	72,467	50,532	47,919	68,314	59,464
	Harvest[b]	7,177	49,029	68,954	112,057	77,765	56,356	69,799	48,058	40,177	38,704	56,777
	% Kept	93	96	98	92	88	96	96	95	84	57	95
	CUE[c]	0.168	0.524	0.559	0.831	0.928	0.642	0.531	0.474	0.411	0.839	0.713
	CUE[d]	-	-	-	0.758	0.886	0.672	0.515	0.498	0.396	0.636	0.684

[a] Estimated total angling effort.

[b] Catch and harvest estimates in number of walleye.

[c] CUE for walleye caught by all anglers derived from estimated effort (rod-hours) and estimated catch.

[d] CUE for walleye caught by walleye anglers derived from observed effort (rod-hours) and observed catch.

Table 19. Length and weight-at-age of walleye harvested in the sport fishery of the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Statistic	Age-group II	III	IV	V	VI	VII	VIII	IX	X	All
June	I	n		39	4	3	2	2				50
		L		423	526	515	438	610				445
		s		21.4	56.8	13.2	166.2	56.6				59.2
	II	n	2	31		5	2	1	2	1		44
		L	353	417		526	560	685	655	685		456
		s	3.5	26.3		39.3	42.4	-	7.1	-		87.3
	III	n		8					1		1	10
		L		423					655		700	474
		s		17.7					-		-	108.9
July	I	n	8	39	4	1	2	1				56[c]
		L	381	417	491	500	610	670				432
		s	19.0	30.3	44.0	-	-	-				62.9
	II	n	2	44	2				1			49
		L	378	412	518				655			420
		s	3.5	22.2	10.6				-			46.1
	III	n	7	11	1	1						20
		L	380	417	508	560						416
		s	16.8	18.4	-	-						47.9
August[b]	I	n		30		3						33
		L		432		540						442
		s		29.3		10.0						42.3
	II	n	1	44	1	2	1		1			50
		L	340	426	470	558	545		645			437
		s	-	23.6	-	38.9	-		-			50.6
September[b]	I	n		20	8	8	1	1				40[d]
		L		467	519	571	640	640				511
		s		31.8	39.8	29.0	-	-				62.3
	II	n	1	15	4	3	2					26[e]
		L	400	476	506	572	638					502
		s	-	27.7	12.5	50.1	3.5					59.4
Study period	Study area	n	21	281	24	26	10	5	5	1	1	378[f]
		L	377	427	511	548	568	643	653	685	700	450
		s	19.4	30.8	37.3	36.7	95.8	44.4	5.7	-	-	67.5
		n	21	280	24	26	10	5	5	1	1	377[g]
		W	526	782	1,438	1,704	2,010	2,520	2,664	3,400	3,100	977
		s	97.0	253.1	391.0	429.4	706.2	1,006.2	115.9	-	-	564.6
Study period (July and August and Sectors I and II)	Study area	n	11	157	7	6	3	1	2			188[h]
		L	377	421	496	539	588	670	650			432
		s	20.2	27.0	35.6	28.0	37.5	-	7.1			52.4
		n	11	157	7	6	3	1	2			188[h]
		W	518	716	1,229	1,550	1,667	3,000	2,609			800
		s	75.1	161.9	298.4	242.9	550.8	-	154.1			373.0

[a] Mean total length ($\bar{L}$) and mean total weight ($\bar{W}$) are in mm and g respectively. The pooled (n=377) length/weight regression equation for samples from June, July, August and September and Sectors I, II and III is:

$$\text{Log } W(g) = -5.0452 + 3.0141 \log L(mm), \quad r=0.91$$

The pooled (n=188) length/weight regression equation for samples from July and August and Sectors I and II is:

$$\text{Log } W(g) = -4.9139 + 2.9577 \log L(mm), \quad r=0.93$$

[b] No walleye samples were collected from Sector III in August and September.

[c] Mean total length and standard deviation were calculated for 56 fish, one of which was not aged.

[d] Mean total length and standard deviation were calculated for 40 fish, two of which were not aged.

[e] Mean total length and standard deviation were calculated for 26 fish, one of which was not aged.

[f] Mean total length and standard deviation were calculated for 378 fish, four of which were not aged.

[g] Mean weight and standard deviation were calculated for 377 fish, four of which were not aged.

[h] Mean total length and weight and their standard deviations were calculated for 188 fish, one of which was not aged.

Table 20. Estimated weight of the walleye harvest by age-group in the sport fishery of the Western Basin, Lake Erie, 1985.

Age-group	Percent frequency	Estimated harvest (number)	Mean weight (kg)	Estimated harvest (kg)
II	5.63 (5.88)[a]	4,524 (3,338)	0.526 (0.518)	2,380 (1,729)
III	75.07 (83.96)	60,317 (47,670)	0.782 (0.716)	47,168 (34,132)
IV	6.43 (3.74)	5,166 (2,123)	1.438 (1.229)	7,429 (2,609)
V	6.97 (3.21)	5,600 (1,823)	1.704 (1.550)	9,542 (2,826)
VI	2.68 (1.60)	2,153 (908)	2.010 (1.667)	4,328 (1,514)
VII	1.34 (0.53)	1,077 (301)	2.520 (3.000)	2,714 (903)
VIII	1.34 (1.07)	1,077 (608)	2.664 (2.609)	2,869 (1,586)
IX	0.27 (0)	217	3.400	738
X	0.27 (0)	217	3.100	673
All	100 (100)	80,348 (56,777)	0.977 (0.800)	77,841 (45,299)

[a] Values in parentheses represent Sectors I and II only during July and August.

Table 21. Catch per unit of effort (CUE) for smallmouth bass caught by sector and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Smallmouth bass anglers	All anglers
June	I	No effort	0.096
	II	1.000	0.080
	III	0.289	0.030
	Study area	0.433 (1.000)[b]	0.071 (0.092)
July	I	0.226	0.088
	II	0.306	0.078
	III	0.303	0.013
	Study area	0.267 (0.266)	0.071 (0.082)
August	I	0.212	0.063
	II	0.093	0.025
	III	0.313	0.028
	Study area	0.182 (0.177)	0.044 (0.046)
September	I	0.123	0.022
	II	0.216	0.071
	III	1.302	0.292
	Study area	0.260 (0.203)	0.074 (0.057)
Study period	I	0.209 (0.218)[c]	0.070 (0.074)
	II	0.234 (0.238)	0.062 (0.056)
	III	0.575 (0.303)	0.052 (0.017)
Study period	Study area	0.244 (0.227)[d]	0.064 (0.065)

[a] CUE represents the observed number of fish caught divided by the observed effort in rod-hours both for smallmouth bass anglers and all anglers.

[b] Values within parentheses represent Sectors I and II only.

[c] Values within parentheses represent July and August only.

[d] Values within parentheses represent Sectors I and II only during July and August.

Table 22. Catch per unit of effort (CUE) for smallmouth bass caught by sector, area and month in the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Area 1	2	3	4	5
June	I	-[b]	-[b]			
	II	1.000	-[b]	-[b]	-[b]	-[b]
	III	0.491	0.0			
July	I	0.093	0.248			
	II	0.467	0.175	0.309	0.381	-[b]
	III	-[b]	0.303			
August	I	0.094	0.249			
	II	0.103	0.103	0.158	-[b]	0.060
	III	0.0	0.385			
September	I	0.185	0.099			
	II	0.067	0.612	0.155	0.021	0.0
	III	0.941	1.538			

[a] CUE represents the observed number of fish caught by smallmouth bass anglers divided by the corresponding observed effort in rod-hours.

[b] No smallmouth bass anglers were interviewed in this area.

Table 23. Distribution of the smallmouth bass catch by sector and month in the Western Basin, Lake Erie, 1985.

Month	Sector	Estimated catch (number)	Percent of total catch
June	I	407	7
	II	176	3
	III	151	2
July	I	802	13
	II	1,805	29
	III	131	2
August	I	685	11
	II	285	5
	III	94	2
September	I	205	3
	II	933	15
	III	553	9
Study period	I	2,099 (1,487)[a]	34 (42)[b]
	II	3,199 (2,090)	51 (58)
	III	929 (225)	15
Study period	Study area	6,227 (3,577)[c]	100

[a] Values within parentheses represent July and August only.

[b] Values within parentheses represent percent of total catch from Sectors I and II only during July and August.

[c] Values within parentheses represent Sectors I and II only during July and August.

Table 24. Distribution of the smallmouth bass catch and harvest by sector, area and month in the Western Basin, Lake Erie, 1985.

Month	Sector	Area	Estimated catch (number)	Percent of total catch	Estimated harvest (number)	Percent kept
June	I	1	100	2	0	0
		2	307	5	0	0
	II	1	51	1	51	100
		2	57	1	0	0
		3	68	1	0	0
		4	-[a]			
		5	-[a]			
	III	1	151	2	77	51
		2	0		0	0
	Study area		734	12	128	17
July		1	53	1	17	32
		2	748	12	398	53
	II	1	727	12	412	57
		2	401	6	279	70
		3	455	7	416	91
		4	222	4	149	67
		5	-[a]			
	III	1	0		0	0
		2	131	2	104	79
	Study area		2,737	44	1,775	65
August	I	1	98	2	77	79
		2	587	9	427	73
	II	1	106	2	24	23
		2	83	1	10	12
		3	71	1	28	39
		4	-[a]			
		5	25	<1	15	60
	III	1	0		0	0
		2	94	2	94	100
	Study area		1,064	17	675	63
September	I	1	58	1	24	41
		2	148	2	148	100
	II	1	13	<1	0	0
		2	457	7	340	74
		3	451	7	372	82
		4	11	<1	0	0
		5	0		0	0
	III	1	179	3	149	83
		2	374	6	255	68
	Study area		1,691	27	1,288	76
Study period	Study area		6,226	100	3,866	62

[a] Angling parties weren't present within this area during interview periods.

Table 25. Distribution of catch and effort statistics for smallmouth bass anglers by day-type in the Western Basin, Lake Erie, 1985.

Sector	Statistic	Day-type: Weekday		Mean[d]		Weekend day		Mean[d]	
I	Rod-hours[a]	3,545	(2,225)[e]	43	(52)	4,059	(3,341)	104	(176)
	Catch[b]	409	(367)	5	(9)	1,025	(660)	26	(35)
	Harvest[b]	290	(248)	3	(6)	967	(603)	25	(32)
	CUE[c]	0.195	(0.245)			0.213	(0.211)		
II	Rod-hours[a]	2,976	(2,691)	36	(63)	6,650	(2,567)	171	(135)
	Catch[b]	1,227	(1,221)	15	(28)	1,051	(298)	27	(16)
	Harvest[b]	1,119	(1,119)	13	(26)	875	(223)	22	(12)
	CUE[c]	0.341	(0.444)			0.201	(0.123)		
III	Rod-hours[a]	739	(410)	9	(10)	696	(342)	18	(18)
	Catch[b]	414	(139)	5	(3)	426	(80)	11	(4)
	Harvest[b]	295	(112)	4	(3)	408	(80)	10	(4)
	CUE[c]	0.545	(0.368)			0.591	(0.214)		
Study area	Rod-hours[a]	7,260	(4,916)[f]	87	(114)	11,405	(5,908)	292	(311)
	Catch[b]	2,050	(1,588)	25	(37)	2,502	(958)	64	(50)
	Harvest[b]	1,704	(1,367)	21	(32)	2,250	(826)	58	(43)
	CUE[c]	0.298	(0.354)			0.226	(0.180)		

[a] Estimated angling effort exerted by smallmouth bass anglers only.

[b] Catch and harvest estimates in number of smallmouth bass.

[c] CUE's for smallmouth bass caught, derived from observed values.

[d] Mean daily estimate of effort (rod-hours). Catch and harvest (by number) based on a six-hour fishing period.

[e] Values within parentheses in "Sectors I, II and III" represent July and August only.

[f] Values within parentheses in "Study area" represent Sectors I and II only during July and August.

Table 26. Distribution of catch and effort statistics for smallmouth bass anglers by census-period in the Western Basin, Lake Erie, 1985.

Sector	Statistic	Census-period AM		PM	
I	Rod-hours[a]	3,670	(3,155)[d]	3,934	(2,411)
	Catch[b]	952	(638)	482	(391)
	Harvest[b]	850	(536)	407	(316)
	CUE[c]	0.259	(0.260)	0.184	(0.195)
II	Rod-hours[a]	2,285	(1,638)	7,341	(3,620)
	Catch[b]	796	(695)	1,482	(825)
	Harvest[b]	720	(632)	1,273	(710)
	CUE[c]	0.195	(0.261)	0.245	(0.230)
III	Rod-hours[a]	720	(405)	715	(347)
	Catch[b]	304	(111)	535	(107)
	Harvest[b]	287	(111)	417	(80)
	CUE[c]	0.424	(0.300)	0.917	(0.308)

[a] Angling effort exerted by smallmouth bass anglers only.

[b] Catch and harvest estimates in number of smallmouth bass.

[c] CUE's for smallmouth bass caught, derived from observed values.

[d] Values within parentheses represent July and August only.

Table 27. Estimated weight of the smallmouth bass harvest by age-group in the sport fishery of the Western Basin, Lake Erie, 1985.

Age-group	Percent frequency	Estimated harvest (number)	Mean weight (kg)	Estimated harvest (kg)
II	3.57 (3.85)[a]	138 (87)	0.475 (0.400)	66 (35)
III	35.71 (26.92)	1,381 (607)	0.621 (0.457)	858 (277)
IV	30.36 (38.46)	1,174 (867)	0.750 (0.640)	881 (555)
V	21.43 (26.92)	829 (607)	1.017 (0.886)	843 (538)
VI	7.14 (3.85)	276 (87)	1.248 (1.000)	344 (87)
VII	1.79 (0.0)	69	1.500	104
All	100 (100)	3,867 (2,253)	0.800 (0.675)	3,096 (1,492)

[a] Values within parentheses represent Sectors I and II only during July and August.

Table 28. Length and weight-at-age of smallmouth bass harvested in the sport fishery of the Western Basin, Lake Erie, 1985.[a]

Month	Sector	Statistic	Age-group II	III	IV	V	VI	VII	All
June	I, II & III	No samples							
July	I	n		2					3[b]
		L		275					308
		s		35.4					62.9
	II	n		4	9	6	1		20
		L		304	336	364	405		342
		s		18.0	18.3	15.3	-		30.7
	III	No samples							
August	I	No samples							
	II	n	1	1	1	1			5[c]
		L	280	295	300	390			332
		s	-	-	-	-			45.4
	III	No samples							
September	I	No samples							
	II	n		8	8	4	1	1	25[d]
		L		329	366	400	410	430	358
		s		21.0	18.8	8.2	-	-	81.1
	III	n	1	5	2	1	2		11
		L	300	367	371	430	421		377
		s	-	15.4	34.6	-	8.5		39.2
Study period	Study area	n	2	21	20	12	4	1	64[e]
		L	290	312	353	384	414	430	352
		s	14.1	72.4	23.9	25.1	9.4	-	59.8
		n	2	20	17	12	4	1	56
		W	475	621	750	1,017	1,248	1,500	800
		s	106.1	197.7	230.4	282.8	176.1	-	311.2
Study period (July and August and Sectors I and II)	Study area	n	1	7	10	7	1		28[f]
		L	280	294	339	368	405		336
		s	-	23.5	18.9	17.0	-		37.0
		n	1	7	10	7	1		28[f]
		W	400	457	640	886	1,000		675
		s	-	78.7	117.4	302.4	-		253.3

[a] Mean total length ($\bar{L}$) and mean total weight ($\bar{W}$) are in mm and g respectively. The pooled (n=56) length/weight regression equation for samples from July, August and September and Sectors I, II and III is:

$$\text{Log } W(g) = -4.8678 + 3.0419 \log L(mm), \quad r=0.94$$

The pooled (n=26) length/weight regression equation for fish from July and August and Sectors I and II is:

$$\text{Log } W(g) = -4.3244 + 2.8235 \log L(mm), \quad r=0.90$$

[b] Mean total length and standard deviation were calculated for three fish, one of which was not aged.

[c] Mean total length and standard deviation were calculated for five fish, one of which was not aged.

[d] Mean total length and standard deviation were calculated for 25 fish, three of which were not aged.

[e] Mean total length and standard deviation were calculated for 64 fish, four of which were not aged.

[f] Mean total length and mean total weight and their standard deviations were calculated for 28 fish, two of which were not aged.

Table 29. Residency status[a] of anglers in the Western Basin, Lake Erie, 1985.

Month	Sector	Number of interviews: Non-resident		Number of interviews: Resident		Percent of total: Non-resident		Percent of total: Resident	
June	I	125		4					
	II	40		25					
	III	12		20					
	Study area	177	(165)[b]	49	(29)	78	(85)	22	(15)
July	I	322		3					
	II	417		37					
	III	7		189					
	Study area	746	(739)	229	(40)	77	(95)	23	(5)
August	I	429		0					
	II	319		19					
	III	0		105					
	Study area	748	(748)	124	(19)	86	(98)	14	(2)
September	I	188		0					
	II	370		21					
	III	18		8					
	Study area	576	(558)	29	(21)	95	(96)	5	(4)
Study period	I	1,064	(751)[c]	7	(3)	99	(100)	1	(<1)
	II	1,146	(736)	102	(56)	92	(93)	8	(7)
	III	37	(7)	322	(294)	10	(2)	90	(98)
Study period	Study area	2,247	(1,487)[d]	431	(59)	84	(96)	16	(4)

[a] "Resident" applied to anglers living in Ontario, while "Non-Resident" applied to all other anglers. Historically, most non-residents were citizens of the United States.

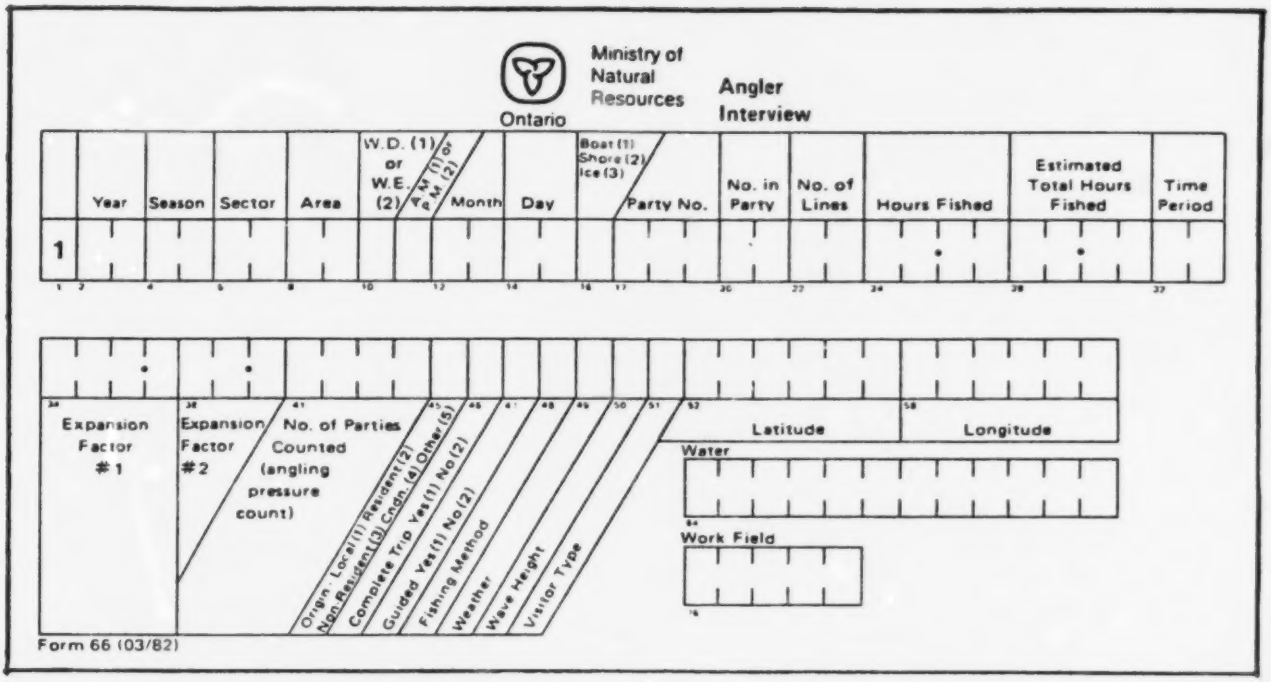
[b] Values within parentheses represent Sectors I and II only.

[c] Values within parentheses represent July and August only.

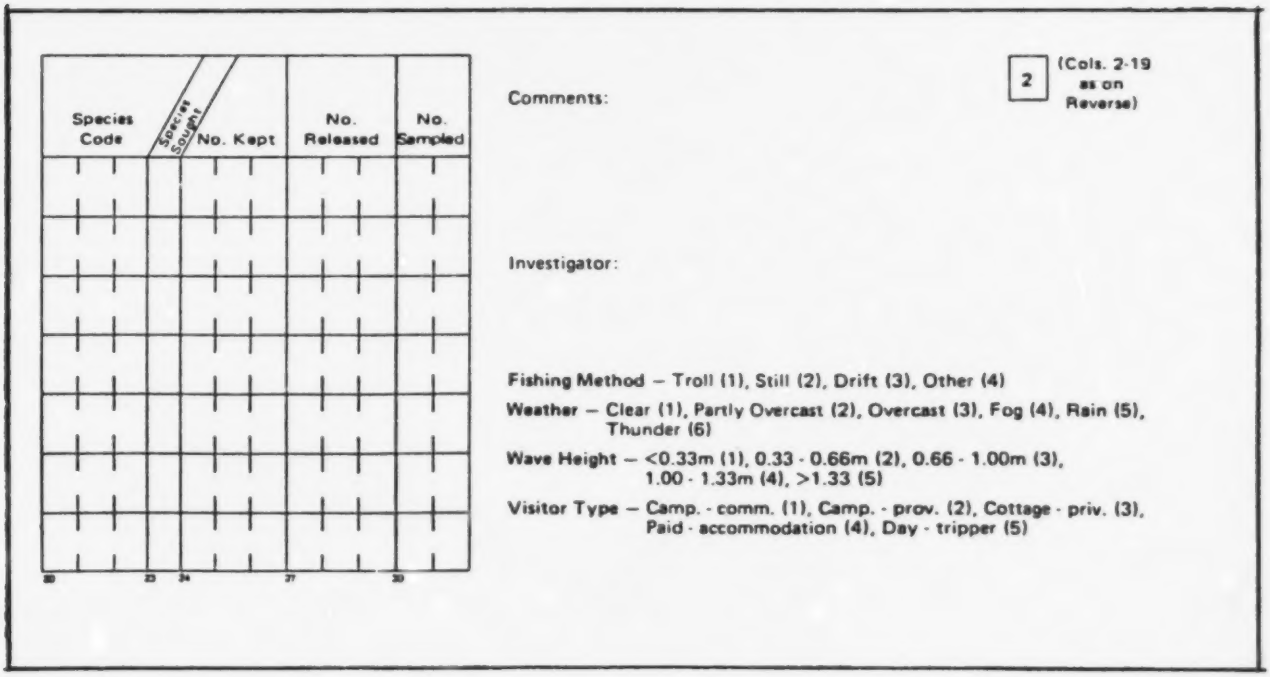
[d] Values within parentheses represent Sectors I and II only during July and August.

Appendix I: Field forms.

1. Angler interview form.



Reverse side.



2. Boat count form.

INSTANTANEOUS COUNT

Sector ☐ Count No. ☐ Day ☐☐ Month ☐☐ Year ☐☐

Area	No. of (Parties) (Individuals)* Counted			Count Time	
	Sailing	Pleasure	Fishing	Start (hrs.)	End (hrs.)
1					
2					
3					
4					
5					

If part of area not counted give reason:

* Cross out unit **not** used.

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3. Weather and water report form.

WEATHER AND WATER REPORT

		AREA				
		1	2	3	4	5
	LAT.					
	LONG.					
TIME: AM PM	EXACT					
TEMPERATURE:	AIR					
(°C)	WATER					
WATER SURFACE						
WAVE HEIGHT (m)						
CLOUD COVER (%)						
WIND: DIRECTION						
STRENGTH	(Knots)					

COMMENTS:

Appendix II: Computational methods (Petzold 1980).

The total estimated harvest (caught minus released) of a species in a stratum (T_h) was calculated as follows:

$$T_h = \frac{D_h}{d_h} \sum_{i}^{d_h} \hat{r}_{hi} \; N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{y}}_{hi}$$

where

D_h = the number of days in stratum h

d_h = the number of days sampled in stratum h

$\hat{r}_{hi}$ = the sample catch per unit of effort on the i'th day for all anglers interviewed

$\hat{\bar{x}}_{hi}$ = the sample mean number of boats per instantaneous boat count on the i'th day

$\hat{\bar{y}}_{hi}$ = the sample mean number of rods per boat on the i'th day

$\hat{\bar{z}}_{hi}$ = the sample mean number of anglers per boat on the i'th day

N_{hi} = the number of fishing hours in the sampling period

The sample catch per unit of effort ($\hat{r}_{hi}$), the sample mean number of boats per boat count ($\hat{\bar{x}}_{hi}$) and the sample mean number of rods per boat ($\hat{\bar{y}}_{hi}$) were calculated as follows:

$$\hat{r}_{hi} = \frac{\sum_{j}^{n_{hi}} c_{hij}}{\sum_{j}^{n_{hi}} e_{hij}}$$

$$\hat{\bar{x}}_{hi} = \frac{\sum_{j}^{m_{hi}} x_{hij}}{m_{hi}}$$

$$\hat{\bar{y}}_{hi} = \frac{\sum_{j}^{n_{hi}} y_{hij}}{n_{hi}}$$

where

c_{hij} = the number of fish kept by the j'th sampled party on the i'th day

e_{hij} = the number of rod-hours fished by the j'th sampled party on the i'th day

n_{hi} = the number of parties interviewed on the i'th day

x_{hij} = the number of boats counted on the j'th boat count

m_{hi} = the number of boat counts on the i'th day

y_{hij} = the number of rods in the j'th party

The estimated total catch of a species, Tc (i.e., those kept plus those released) was estimated in the same manner as for harvest except $\hat{\bar{r}}_{hi}$ was calculated using all fish caught.

The total rod-hours in a stratum (E_h) and angler-hours (A_h) in a stratum (h) were calculated as:

$$E_h = \frac{D_h}{d_h} \sum_{i}^{d_h} N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{y}}_{hi}$$

$$A_h = \frac{D_h}{d_h} \sum_{i}^{d_h} N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{z}}_{hi}$$

Appendix III: Common and scientific names of fish species reported during the creel census in the Western Basin, Lake Erie, 1985.

Common name	Scientific name[a]
Rock bass	Ambloplites rupestris (Rafinesque)
Smallmouth bass	Micropterus dolomieui Lacepede
White bass	Morone chrysops (Rafinesque)
Yellow bullhead	Ictalurus natalis (Lesueur)
Common carp	Cyprinus carpio Linnaeus
Channel catfish	Ictalurus punctatus (Rafinesque)
Freshwater drum	Aplodinotus grunniens Rafinesque
White perch	Morone americana (Gmelin)
Yellow perch	Perca flavescens (Mitchill)
Gizzard shad	Dorosoma cepedianum (Lesueur)
Sunfish	Centrarchidae species
Walleye	Stizostedion vitreum vitreum (Mitchill)

[a] After Robins et al. 1980.

Appendix IV: Monthly summaries of effort, catch per unit of effort (CUE), catch and harvest.

Explanatory Notes:

1. Sector 1, 2 and 3 represents the Western Basin.

2. Computer codes denoting season are 6 for June, 7 for July, 8 for August and 9 for September.

3. Computer codes denoting day-type are 1 for weekday and 2 for weekend days.

4. Computer codes denoting time are 1 for AM (0900-1400 h) and 2 for PM (1400-1900 h).

5. Multiple numerical codes indicate pooling of strata.

6. A 'Dummy' encountered in the species variable list is an integral part of the computer program used to indicate that either (1) a party was interviewed that was not seeking any species in particular and had not caught any fish or that (2) a boat count had been undertaken with zero boats observed.

7. SE denotes standard error of estimate.

   Note: A minimum of two sampling days is required to calculate a standard error of estimate for any given stratum. In 1985, two strata in Sector I and one in Sector III were insufficiently sampled (one sampling day each instead of two) during September. Therefore, the overall and September standard errors were underestimated by about 1% and 4% respectively, whereas those for June, July and August were valid.

SUMMARY FOR:

SEASON 6 7 8 9
SECTOR 1 2
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
260	700	1.36	3.35	6033	6011	1270351	10939)	1262841	11095)	109	2210	470	4.75

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)
BOWFN	993	0	0	0.000	0.000	0.000	0.000	0(0)	0(0)
SHEEPHE	371	1534	10	0.255	0.002	0.260	0.001	32780(4152)	183(128)
WALLEYE	334	3611	3465	0.601	0.576	0.648	0.616	81854(7648)	77810(7338)
Y. PERC	331	49	22	0.008	0.004	0.010	0.003	1221(309)	394(142)
S. BASS	316	395	223	0.066	0.037	0.042	0.025	5297(612)	3188(515)
P. BASS	311	1	0	0.000	0.000	0.000	0.000	21(19)	0(0)
W. BASS	302	270	28	0.045	0.005	0.036	0.004	4580(843)	512(173)
W. PERC	301	116	1	0.019	0.000	0.020	0.000	2541(531)	19(17)
C. CATF	234	150	22	0.025	0.004	0.032	0.004	4068(1006)	523(176)
CARP	146	1	0	0.000	0.000	0.000	0.000	18(16)	0(0)

CATCH SUMMARY(SPECIES-FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS (SE)
SHEEPHE	371	9	4	0.450	0.200	0.510	0.201	130(73)	51(48)	3	20	255 157
WALLEYE	334	3610	3465	0.602	0.578	0.649	0.617	81595(7613)	77572(7301)	786	5998	125642 11005
Y. PERC	331	20	19	0.126	0.119	0.162	0.128	470(157)	370(128)	14	159	2896 930
S. BASS	316	274	222	0.223	0.181	0.215	0.189	3712(595)	3250(554)	108	1229	17230 1552
W. BASS	302	35	24	0.211	0.145	0.303	0.303	585(254)	487(245)	18	166	1609 443
W. PERC	301	1	1	0.250	0.250	0.250	0.250	15(13)	15(13)	1	4	59 53
C. CATF	234	22	22	0.106	0.106	0.227	0.227	521(243)	521(243)	15	208	2293 634

SUMMARY FOR:

SEASON	6 7 8 9
SECTOR	3
AREA	1 2
DAY-TYPE	1 2
TIME-PERIOD	1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
78	238	2.10	2.10	1041	903	186001	2364]	181761	2343]	322	37	145	3.62

CATCH SUMMARY(ALL FISHERMEN)

SPECIES CODE		OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
999	DUMMY	0	0	0.000	0.000	0.000	0.000	0]	0]	0]	0]
371	SHEEPHE	234	0	0.234	0.000	0.228	0.000	4137]	613]	0]	0]
334	WALLEYE	120	119	0.122	0.121	0.142	0.140	2577]	675]	2537]	662]
331	Y. PERC	198	160	0.201	0.163	0.196	0.157	3558]	1012]	2848]	880]
316	S. BASS	51	40	0.052	0.041	0.051	0.037	923]	209]	679]	186]
311	R. BASS	11	4	0.011	0.004	0.014	0.004	260]	124]	70]	36]
310	SUNFISH	4	4	0.004	0.004	0.011	0.011	198]	0]	195]	0]
302	W. BASS	50	13	0.051	0.013	0.048	0.012	879]	239]	215]	104]
301	W. PERC	11	6	0.011	0.006	0.011	0.003	208]	99]	52]	34]
234	C. CATF	27	7	0.027	0.007	0.020	0.004	372]	73]	78]	41]
232	Y. BULL	2	2	0.002	0.002	0.001	0.001	16]	14]	16]	14]
63	G. SHAD	1	1	0.001	0.001	0.001	0.001	24]	20]	24]	20]

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES CODE		OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
334	WALLEYE	119	119	0.142	0.142	0.170	0.170	2662]	732]	2662]	732]	201	841	15698	2129
331	Y. PERC	169	160	0.731	0.692	0.833	0.812	2774]	711]	2704]	705]	48	231	3330	654
316	S. BASS	45	40	0.575	0.511	0.585	0.490	840]	230]	703]	218]	20	78	1435	383
311	R. BASS	4	4	0.140	0.140	0.272	0.272	57]	31]	57]	31]	4	29	212	116
310	SUNFISH	4	4	2.000	2.000	2.000	2.000	240]	0]	240]	0]	1	2	120	0
302	W. BASS	14	12	0.427	0.346	0.569	0.632	383]	228]	373]	228]	6	33	591	305
301	W. PERC	6	6	0.331	0.381	0.380	0.380	80]	56]	80]	56]	4	16	211	158
234	C. CATF	5	4	0.125	0.100	0.116	0.073	31]	28]	25]	22]	5	40	267	171
232	Y. BULL	2	2	0.167	0.167	0.167	0.167	11]	10]	11]	10]	1	12	69	61

SUMMARY FOR:

SEASON 2
SECTOR 1 2
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
56	68	1.29	1.29	611	611	6807(	1236)	6807(	1236)	29	165	93	1.11

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0(	0)	0(	0)
SHEEPHE	371	136	0	0.223	0.000	0.261	0.000	1778(	285)	0(	0)
WALLEYE	334	247	240	0.404	0.393	0.458	0.437	3114(	663)	2976(	681)
S. BASS	316	56	5	0.092	0.010	0.036	0.007	583(	189)	51(	46)
W. BASS	312	129	8	0.206	0.013	0.239	0.028	1764(	642)	192(	121)
W. PERC	301	30	0	0.049	0.000	0.083	0.000	563(	305)	0(	0)
C. CATF	234	0	0	0.013	0.000	0.011	0.000	75(	36)	0(	0)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
WALLEYE	334	247	240	0.404	0.393	0.458	0.437	3114(	663)	2976(	681)	68	611	6807	1236
S. BASS	316	6	6	1.000	1.000	1.000	1.000	75(	67)	75(	67)	1	6	75	67
W. BASS	312	7	7	0.667	0.667	1.736	1.736	285(	230)	285(	230)	3	11	164	94

SUMMARY FOR:

SEASON 7
SECTOR 1 2
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
75	315	3.10	3.08	2081	2064	354851	41691	353451	41791	40	739	145	4.99

CATCH SUMMARY(ALL FISHERMEN)

SPECIES CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)
DUMMY	999	0	0	0.000	0.000	0.000	0 (0)	0 (0)
SHEEPHE	371	666	4	0.323	0.002	0.337	0.002	11918 (1668)	56 (52)
WALLEYE	334	1580	1506	0.765	0.730	0.814	0.772	28760 (4571)	27272 (4224)
Y. PERC	331	20	5	0.010	0.002	0.011	0.003	401 (171)	109 (56)
S. BASS	316	169	103	0.082	0.050	0.074	0.047	2606 (381)	1673 (352)
W. BASS	302	98	17	0.047	0.008	0.045	0.008	1590 (418)	300 (123)
W. PERC	301	32	1	0.016	0.000	0.017	0.001	612 (167)	19 (17)
C. CATF	234	86	14	0.042	0.007	0.053	0.007	1868 (405)	264 (103)
CARP	186	1	0	0.000	0.000	0.001	0.000	18 (16)	0 (0)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS (SE)
SHEEPHE	371	9	4	0.450	0.200	0.510	0.201	1301 (73)	511 (48)	3	20	256 157
WALLEYE	334	1580	1506	0.769	0.733	0.819	0.777	28563 (4519)	27075 (4165)	313	2053	34861 3988
Y. PERC	331	5	5	0.111	0.111	0.117	0.117	81 (40)	31 (40)	4	45	693 335
S. BASS	316	124	102	0.267	0.219	0.296	0.252	1903 (394)	1623 (369)	54	465	6434 1062
W. BASS	302	13	16	0.205	0.182	0.224	0.202	220 (92)	198 (84)	12	88	981 337
W. PERC	301	1	1	0.250	0.250	0.250	0.250	15 (13)	15 (13)	1	4	59 53
C. CATF	234	14	14	0.157	0.157	0.402	0.402	390 (234)	390 (234)	8	89	970 354

SUMMARY FOR:

SEASON 1
SECTOR 1 2
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
76	253	3.43	3.41	1376	1372	48654(	9078)	48063(	9258)	19	748	128	7.31

CATCH SUMMARY(ALL FISHERMEN)

SPECIES CODE		OBSERVED OBS. CATCH	OBS. KEPT	CATCH/ RD-HR	KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0(0)	0(0)
SHEEPHE	371	479	6	0.256	0.003	0.272	0.003	13083(3696)	126(117)
WALLEYE	334	1103	1064	0.589	0.568	0.639	0.614	30705(5899)	29506(5752)
Y. PERC	331	15	7	0.008	0.004	0.010	0.001	483(211)	65(28)
S. BASS	316	96	49	0.046	0.026	0.020	0.012	970(230)	580(204)
R. BASS	311	1	0	0.001	0.000	0.000	0.000	21(19)	0(0)
W. BASS	302	26	0	0.014	0.000	0.011	0.000	516(322)	0(0)
W. PERC	301	19	0	0.010	0.000	0.012	0.000	580(318)	0(0)
C. CATF	234	47	7	0.025	0.004	0.037	0.005	1797(919)	249(142)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES CODE		OBSERVED OBS. CATCH	OBS. KEPT	CATCH/ RD-HR	KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS (SE)
WALLEYE	334	1102	1064	0.589	0.569	0.640	0.615	30641(5893)	29464(5748)	252	1870	47905 9233
Y. PERC	331	6	6	0.092	0.092	0.126	0.126	68(30)	68(30)	5	65	541 245
S. BASS	316	65	49	0.177	0.133	0.147	0.130	645(218)	569(210)	26	368	4390 873
W. BASS	302	6	0	0.235	0.000	0.235	0.000	56(52)	0(0)	1	26	239 221
C. CATF	234	7	7	0.084	0.084	0.110	0.110	126(68)	126(68)	6	84	1148 502

SUMMARY FOR:

SEASON 2
SECTOR 1 2
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI-DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
53	153	3.81	3.82	1405	1464	361391	42821	360671	42911	21	558	104	4.52

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/RD-HR	OBSERVED KEPT/RD-HR	WEIGHTED CATCH/RD-HR	WEIGHTED KEPT/RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0	(0)	0	(0)
SHEEPHE	371	253	0	0.173	0.000	0.166	0.000	6001	(846)	0	(0)
WALLEYE	334	681	655	0.465	0.447	0.534	0.501	19276	(1538)	18057	(1568)
Y. PERC	331	14	10	0.010	0.007	0.009	0.006	337	(148)	220	(127)
S. BASS	316	84	65	0.057	0.044	0.032	0.025	1138	(375)	884	(313)
W. BASS	302	20	3	0.014	0.002	0.014	0.001	510	(181)	20	(15)
W. PERC	301	36	0	0.025	0.000	0.022	0.000	786	(244)	0	(0)
C. CATF	234	9	1	0.006	0.001	0.009	0.000	320	(59)	10	(9)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/RD-HR	OBSERVED KEPT/RD-HR	WEIGHTED CATCH/RD-HR	WEIGHTED KEPT/RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
WALLEYE	334	681	655	0.465	0.447	0.534	0.501	19276	(1538)	18057	(1568)	153	1464	36069	4291
Y. PERC	331	9	8	0.183	0.162	0.193	0.133	3211	(148)	2201	(118)	5	49	1661	832
S. BASS	316	77	65	0.203	0.167	0.172	0.155	1089	(383)	983	(350)	27	390	6331	717
W. BASS	302	4	1	0.095	0.024	0.108	0.017	241	(20)	41	(31)	2	42	225	157
C. CATF	234	1	1	0.029	0.029	0.029	0.029	51	(41)	51	(41)	1	35	175	157

SUMMARY FOR:

SEASON	6	
SECTOR	3	
AREA	1	2
DAY-TYPE	1	2
TIME-PERIOD	1	2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
15	69	2.14	2.14	302	300	5618(	1782)	5673(	1821)	20	12	28	4.61

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0(0)	0(0)
SHEEPHE	371	22	0	0.073	0.000	0.046	0.000	259(107)	0(0)
WALLEYE	334	45	45	0.150	0.150	0.187	0.187	1060(575)	1060(575)
Y. PERC	331	23	16	0.077	0.053	0.119	0.068	674(573)	383(310)
S. BASS	316	9	6	0.030	0.020	0.027	0.014	151(93)	77(69)
R. BASS	311	1	0	0.003	0.000	0.002	0.000	14(13)	0(0)
W. BASS	302	20	3	0.067	0.010	0.080	0.017	452(188)	98(81)
W. PERC	301	10	6	0.033	0.020	0.032	0.009	179(95)	52(34)
C. CATF	234	1	0	0.003	0.000	0.002	0.000	13(12)	0(0)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH (SE)	ESTIM. HARVEST (SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS (SE)
WALLEYE	334	45	45	0.152	0.152	0.226	0.226	1156(664)	1156(664)	64	277	5109 1543
Y. PERC	331	16	16	0.416	0.416	0.540	0.540	302(231)	302(231)	6	39	560 378
S. BASS	316	7	6	0.289	0.247	0.373	0.320	70(63)	60(54)	4	24	187 134
W. BASS	302	5	3	0.294	0.176	0.327	0.295	104(82)	94(81)	3	17	320 246
W. PERC	301	6	6	0.381	0.381	0.380	0.380	80(56)	80(56)	4	16	211 158
C. CATF	234	0	0	0.000	0.000	0.000	0.000	0(0)	0(0)	1	15	112 101

SUMMARY FOR:

SEASON 7
SECTOR 1
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
24	89	2.30	2.13	423	392	77741	11361	75371	11101	189	7	47	5.17

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
DUMMY	997	0	0	0.000	0.000	0.000	0.000	0(	0)	0(	0)
SHEEPHE	371	78	0	0.199	0.000	0.183	0.000	1376(	252)	0(	0)
WALLEYE	334	56	55	0.143	0.140	0.159	0.153	1195(	327)	1155(	299)
Y. PERC	331	59	53	0.150	0.135	0.167	0.155	1259(	708)	1169(	705)
S. BASS	316	5	4	0.013	0.010	0.017	0.014	131(	98)	104(	75)
R. BASS	311	7	1	0.018	0.003	0.027	0.003	200(	120)	24(	20)
W. BASS	302	12	1	0.031	0.003	0.028	0.003	209(	101)	24(	20)
W. PERC	301	1	0	0.003	0.000	0.004	0.000	29(	27)	0(	0)
C. CATF	234	7	3	0.018	0.008	0.012	0.006	87(	34)	47(	30)
G. SHAD	63	1	1	0.003	0.003	0.003	0.003	24(	20)	24(	20)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
WALLEYE	334	55	55	0.146	0.146	0.155	0.155	1101(	266)	1101(	266)	83	377	7109	1074
Y. PERC	331	54	53	0.471	0.462	0.539	0.534	897(	457)	899(	458)	20	115	1666	435
S. BASS	316	5	4	0.303	0.242	0.302	0.244	139(	100)	113(	77)	4	17	460	327
R. BASS	311	1	1	0.667	0.667	0.667	0.667	25(	21)	25(	21)	1	2	38	31

SUMMARY FOR:

SEASON 8
SECTOR 3
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
24	47	2.23	1.06	205	152	33611	8921	31291	8151	105	0	44	2.45

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0(	0)	0(	0)
SHEEPHE	371	87	0	0.490	0.000	0.446	0.000	13951	5281	0(	0)
WALLEYE	334	11	11	0.061	0.061	0.043	0.043	1361	71	1361	71
Y. PERC	331	22	7	0.121	0.039	0.109	0.043	3411	1391	1351	661
S. BASS	315	5	5	0.028	0.028	0.030	0.030	941	591	941	591
W. BASS	302	1	1	0.006	0.006	0.010	0.010	301	281	301	281
C. CATF	234	6	0	0.033	0.000	0.037	0.000	1151	431	0(	0)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
WALLEYE	334	11	11	0.072	0.072	0.051	0.051	1351	701	1351	701	39	153	2660	820
Y. PERC	331	7	7	0.519	0.519	1.106	1.106	3641	1921	3641	1921	5	14	329	138
S. BASS	316	5	5	0.313	0.313	0.268	0.268	781	481	781	481	5	16	291	109
W. BASS	302	1	1	1.333	1.333	1.333	1.333	2241	2071	2241	2071	1	1	168	156

SUMMARY--FOR:

SEASON 2
SECTOR 3
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

NUMBER SAMPLING PERIODS	NUMBER PARTIES INTERV.	MEAN ANG/ PARTY	MEAN RODS/ PARTY	OBSERVED ANGLER HOURS	OBSERVED ROD HOURS	ESTIM. ANGLER HOURS	STD. ERROR	ESTIM. ROD HOURS	STD. ERROR	NO. RESI- DENTS	NO. NON RES.	NUMBER PARTY COUNTS	MEAN PARTIES/ COUNT
14	33	2.00	1.97	111	110	1843(	531)	1831(	524)	8	18	26	1.73

CATCH SUMMARY(ALL FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)
DUMMY	999	0	0	0.000	0.000	0.000	0.000	0(	0)	0(	0)
SHEEPHE	371	45	0	0.411	0.000	0.605	0.000	1107(	149)	0(	0)
WALLEYE	334	8	8	0.073	0.073	0.102	0.102	186(	117)	186(	117)
Y. PERC	331	94	84	0.858	0.766	0.702	0.634	1285(	419)	1161(	420)
S. BASS	316	32	25	0.292	0.228	0.302	0.220	553(	148)	403(	144)
R. BASS	311	3	3	0.027	0.027	0.025	0.025	46(	30)	46(	30)
SUNFISH	310	4	4	0.036	0.036	0.108	0.108	198(	0)	198(	0)
W. BASS	302	17	8	0.155	0.073	0.103	0.034	188(	104)	62(	56)
C. CATF	234	13	4	0.119	0.036	0.086	0.017	157(	47)	31(	28)
Y. BULL	232	2	2	0.018	0.018	0.009	0.009	16(	14)	16(	14)

CATCH SUMMARY(SPECIES FISHERMEN)

SPECIES	CODE	OBS. CATCH	OBS. KEPT	OBSERVED CATCH/ RD-HR	OBSERVED KEPT/ RD-HR	WEIGHTED CATCH/ RD-HR	WEIGHTED KEPT/ RD-HR	ESTIM. CATCH	(SE)	ESTIM. HARVEST	(SE)	NUMBER PARTIES	OBS. ROD-HRS	ESTIM. ROD-HRS	(SE)
WALLEYE	334	8	8	0.237	0.237	0.330	0.330	270(	138)	270(	138)	15	34	820	412
Y. PERC	331	92	84	1.424	1.300	1.561	1.483	1209(	454)	1149(	444)	17	65	775	275
S. BASS	316	28	25	1.302	1.163	1.113	0.912	552(	191)	453(	191)	7	22	496	101
R. BASS	311	3	3	0.111	0.111	0.185	0.185	32(	22)	32(	22)	3	27	174	112
SUNFISH	310	4	4	2.000	2.000	2.000	2.000	240(	0)	240(	0)	1	2	120	0
W. BASS	302	8	8	0.533	0.533	0.533	0.533	55(	49)	55(	49)	2	15	103	92
C. CATF	234	5	4	0.200	0.160	0.200	0.160	31(	28)	25(	22)	4	25	154	138
Y. BULL	232	2	2	0.167	0.167	0.167	0.167	11(	10)	11(	10)	1	12	69	61